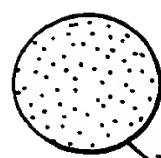




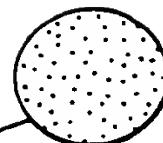
1/47

# FIG. 1



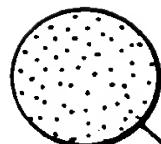
[ SEQ. ID NO: 3]

X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C  
5' 3'



G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X  
3' 5'

[ SEQ. ID NO: 4]



X-C-C-T-T-G-A-G-A-T-T-T-C-C-C-T-C  
G-G-A-A-C-T-C-T-A-A-A-G-G-G-A-G-X

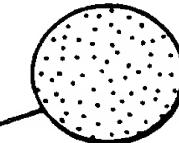


FIG. 2

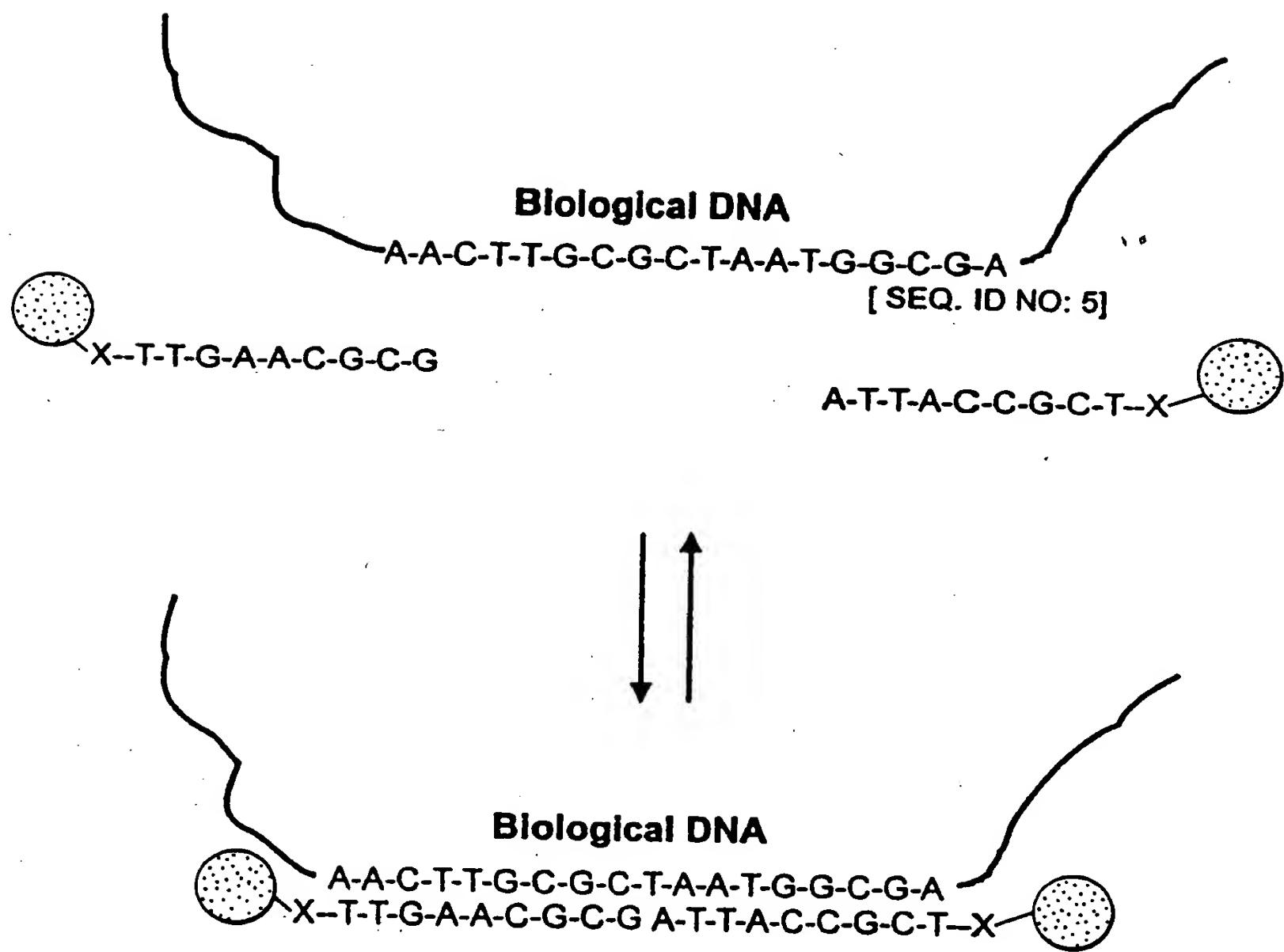
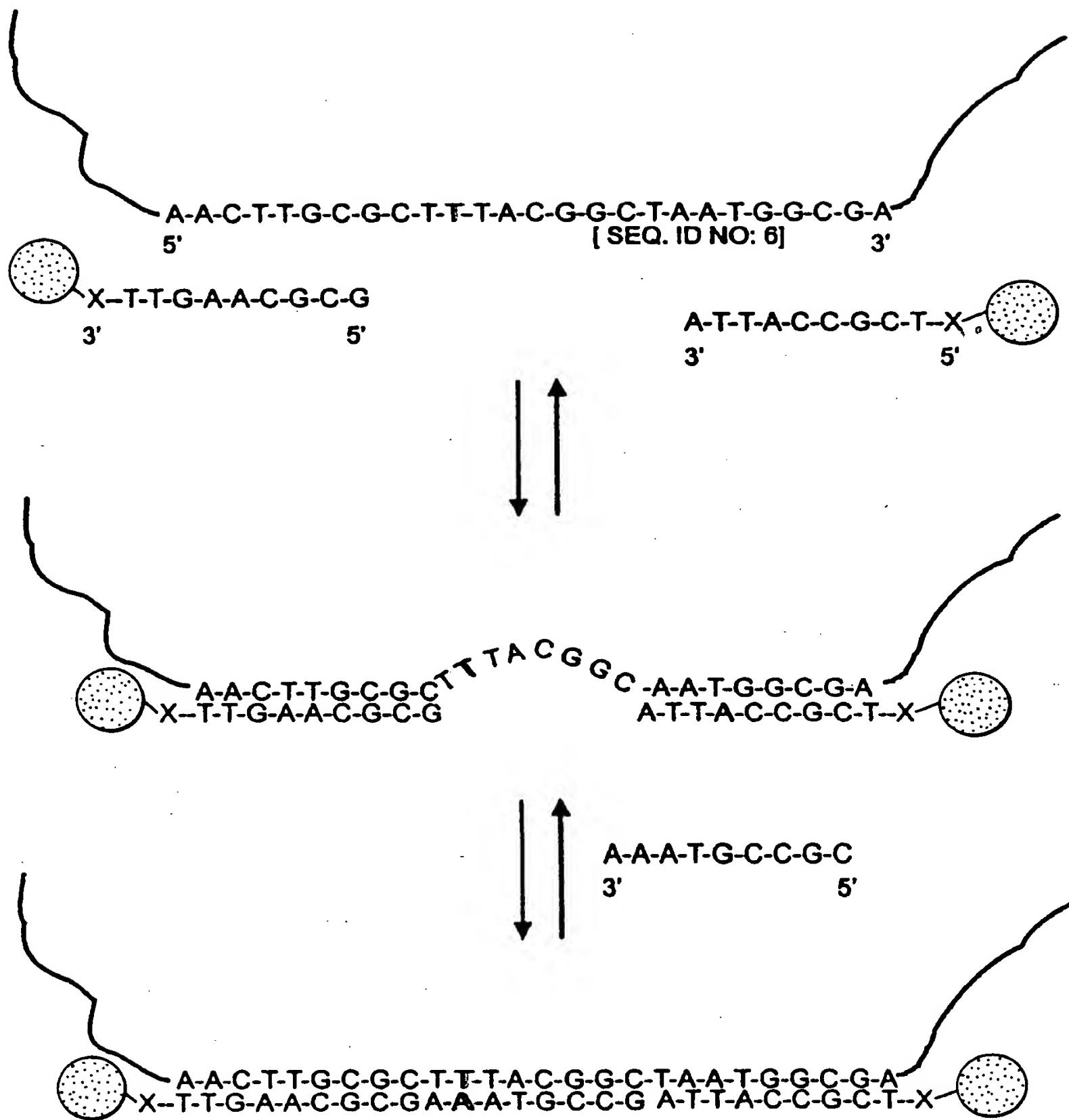


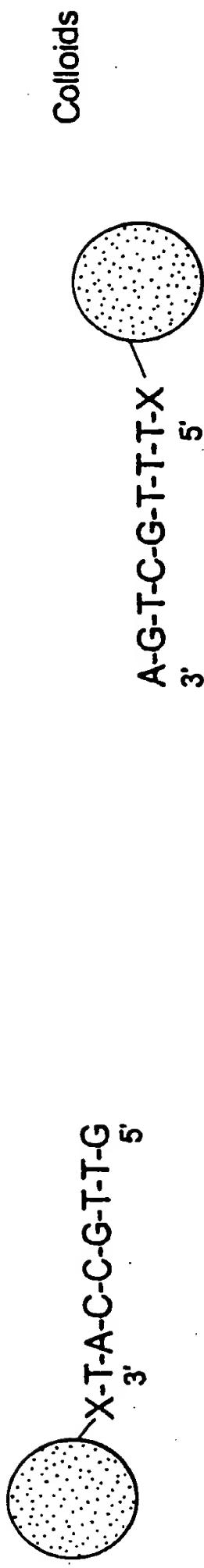
FIG. 3



**FIG. 4**

Linking oligonucleotide

A-T-G-G-C-A-A-C-T-T-A-C-T-A-T-A-C-G-C-T-A-G  
A-T-A-T-G-C-G-C-G-A-T-C-T-C-A-G-C-A-A-A  
[SEQ. ID NO: 2] ↗  
[SEQ. ID NO: 1] ↗



Heat ↗ ↘  
Mix below Tm

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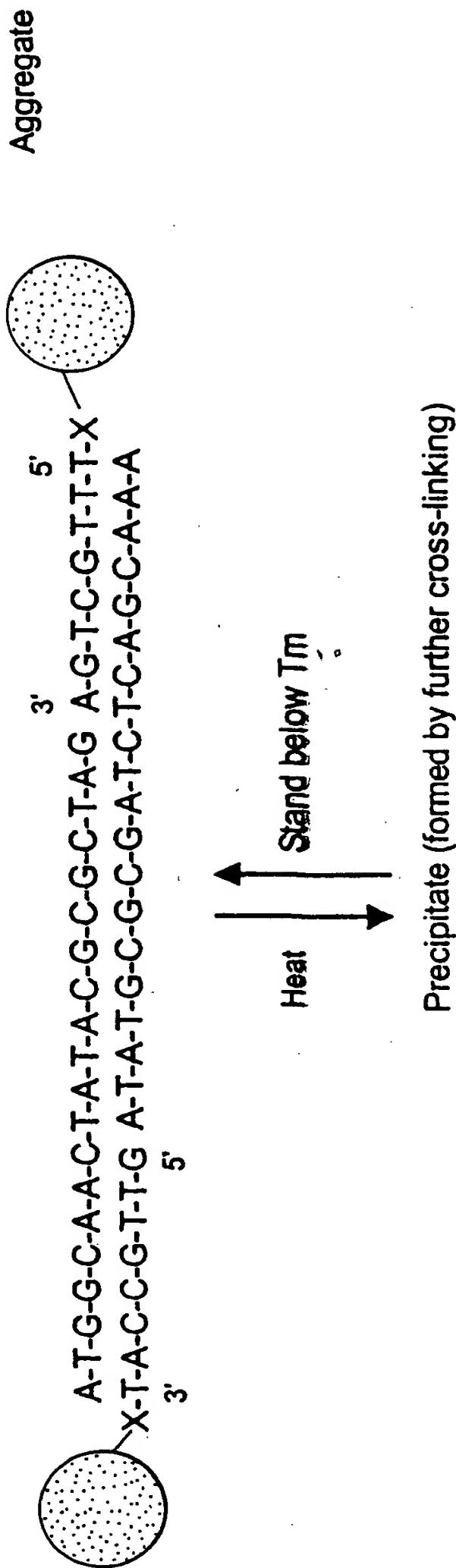
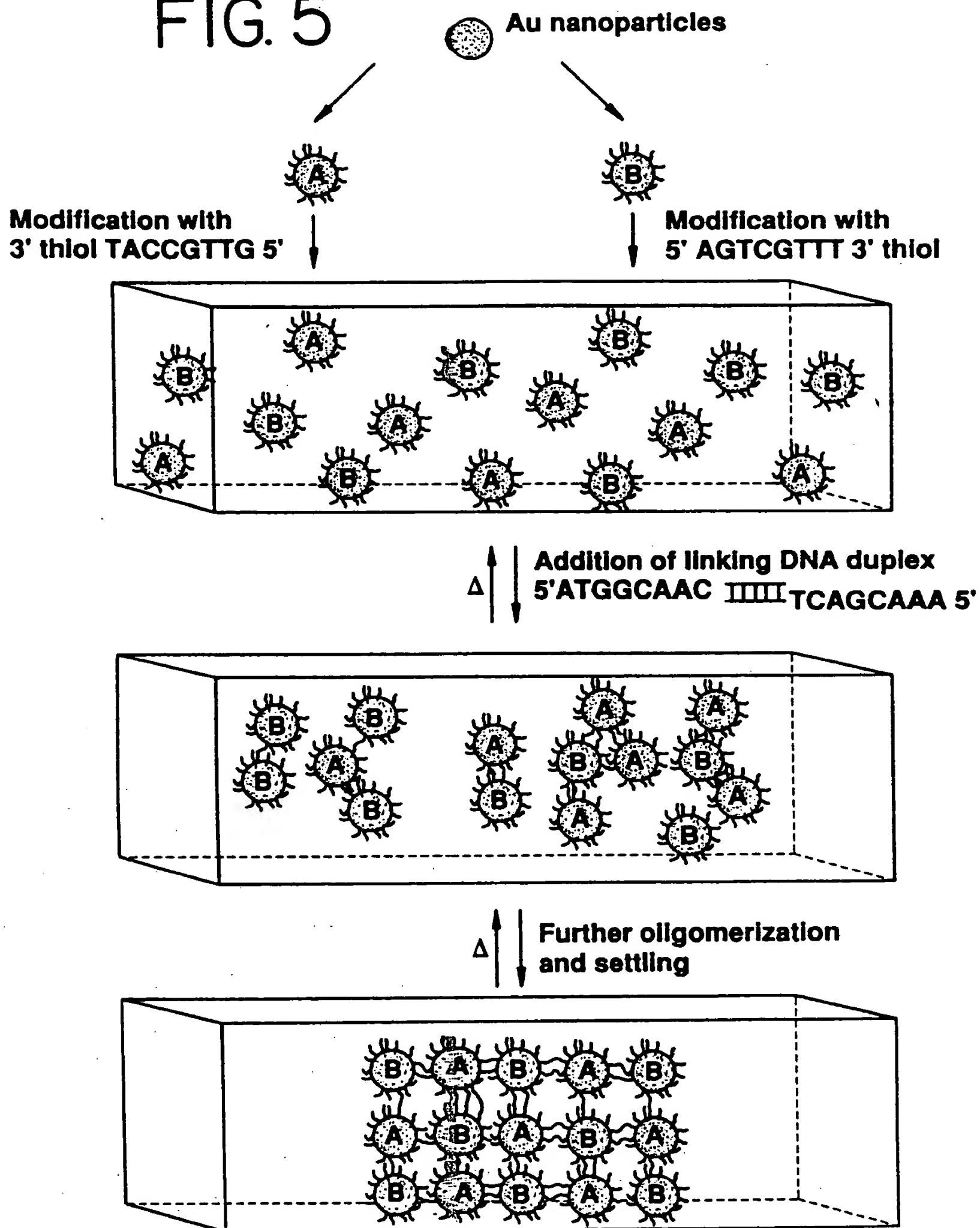
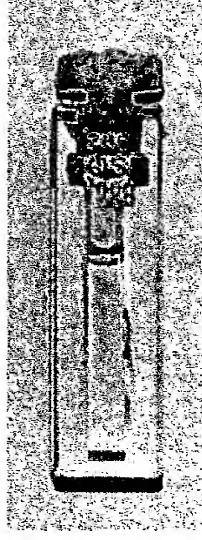
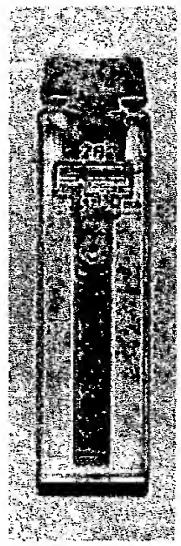
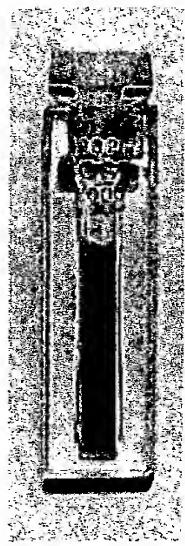


FIG. 5

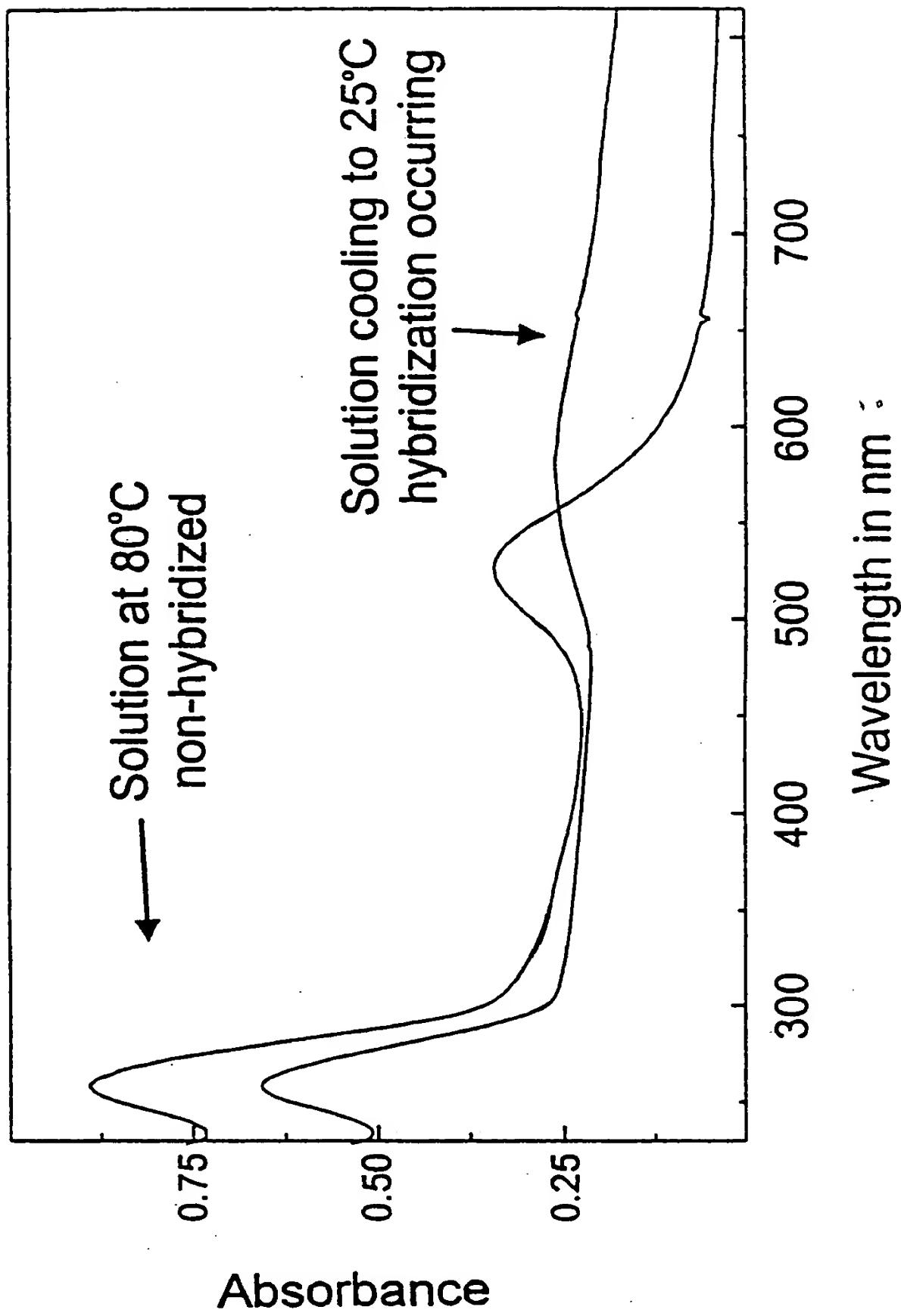


**FIG. 6A FIG. 6B FIG. 6C**

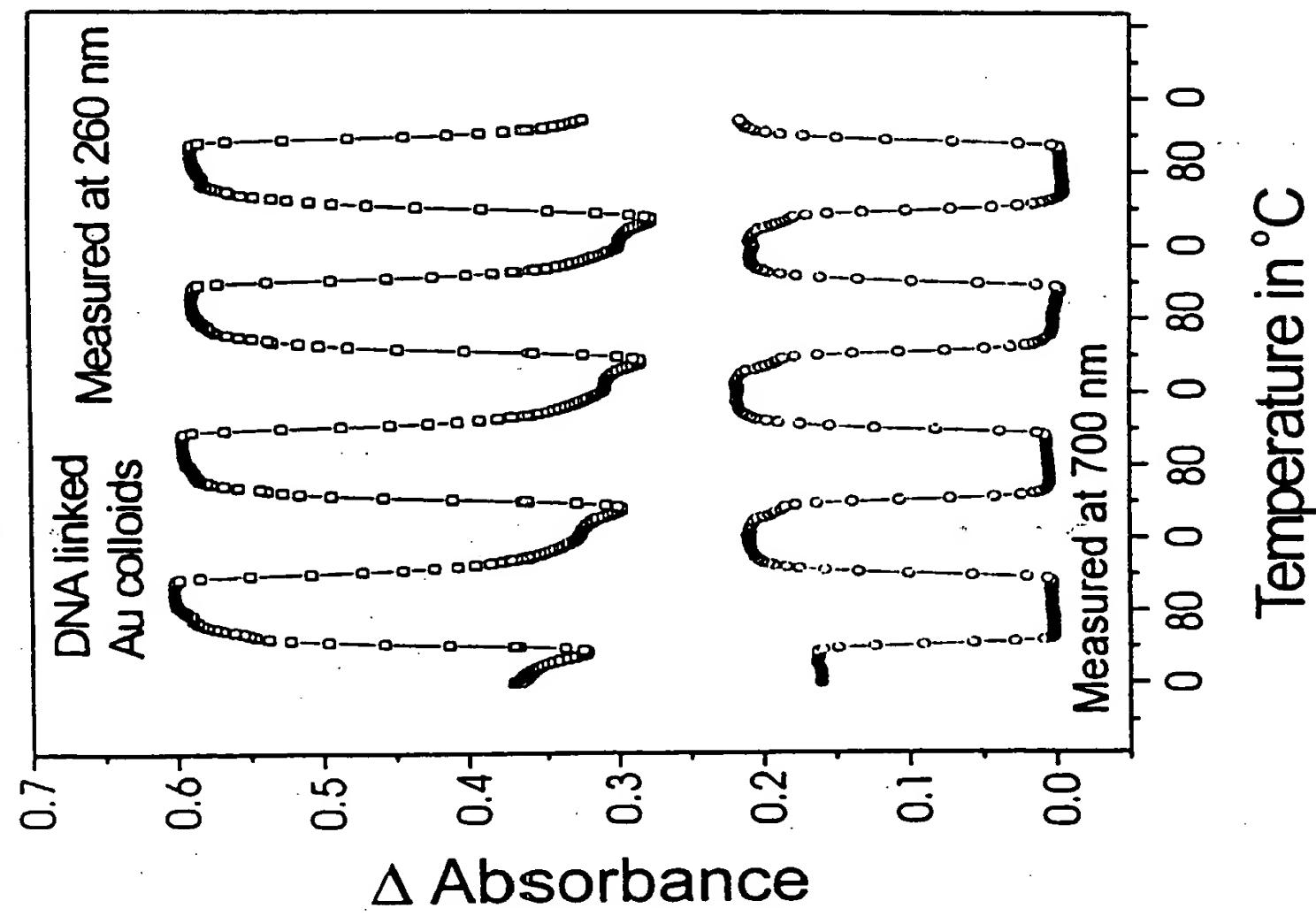


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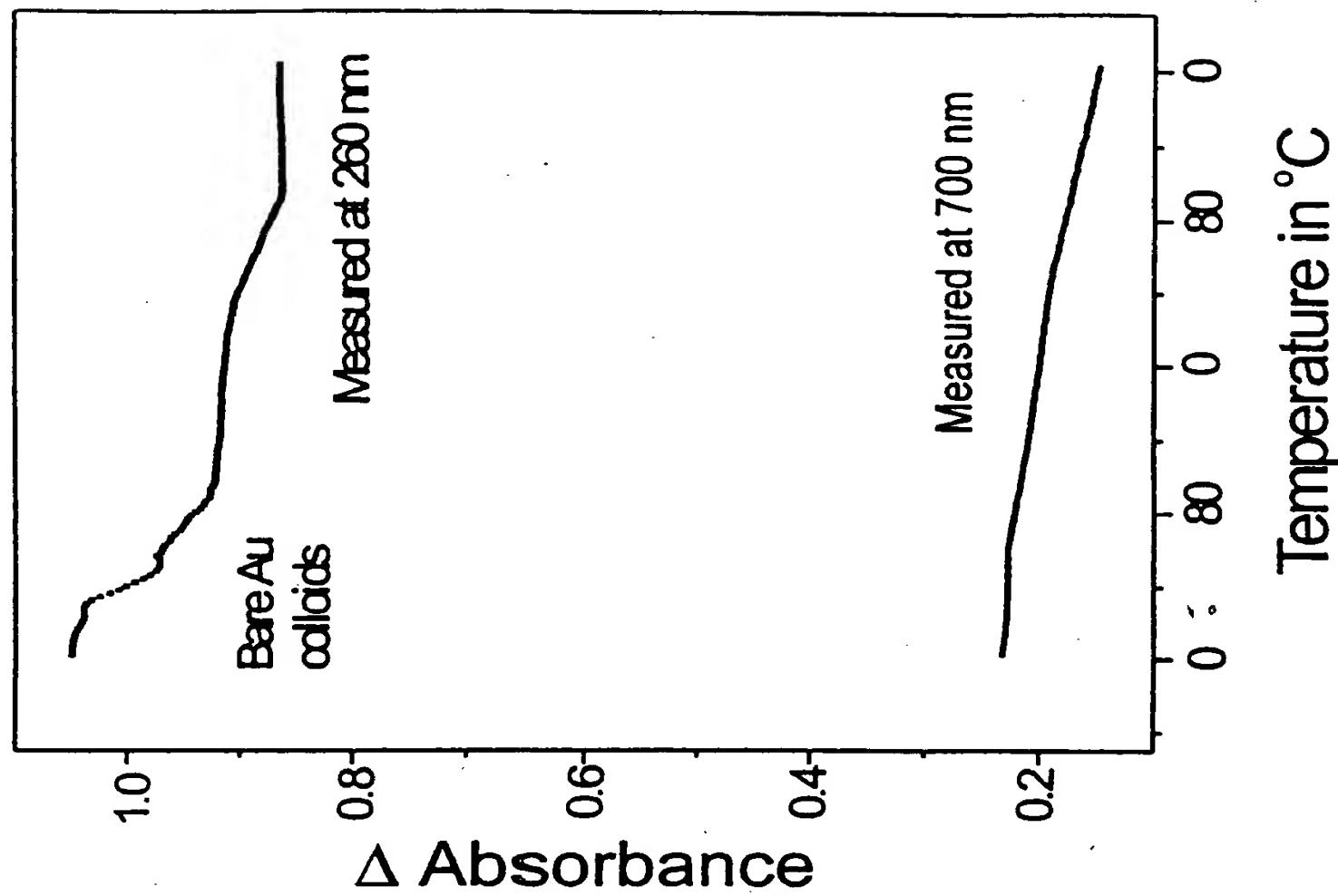
FIG. 7



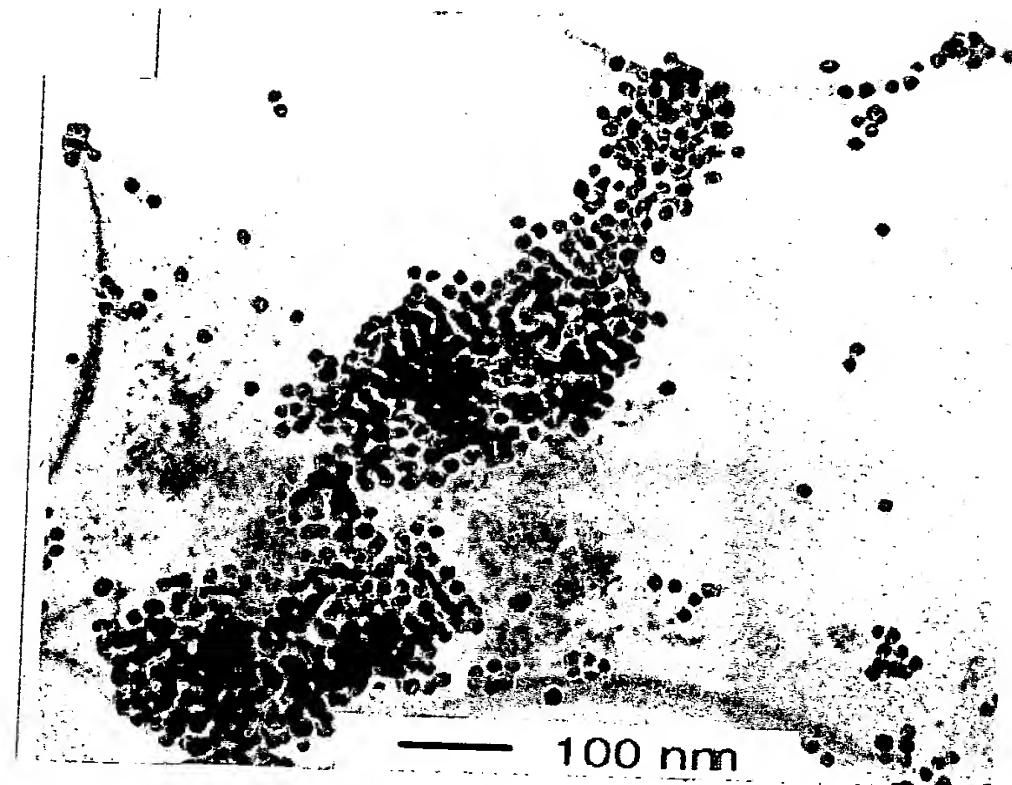
**FIG. 8A**



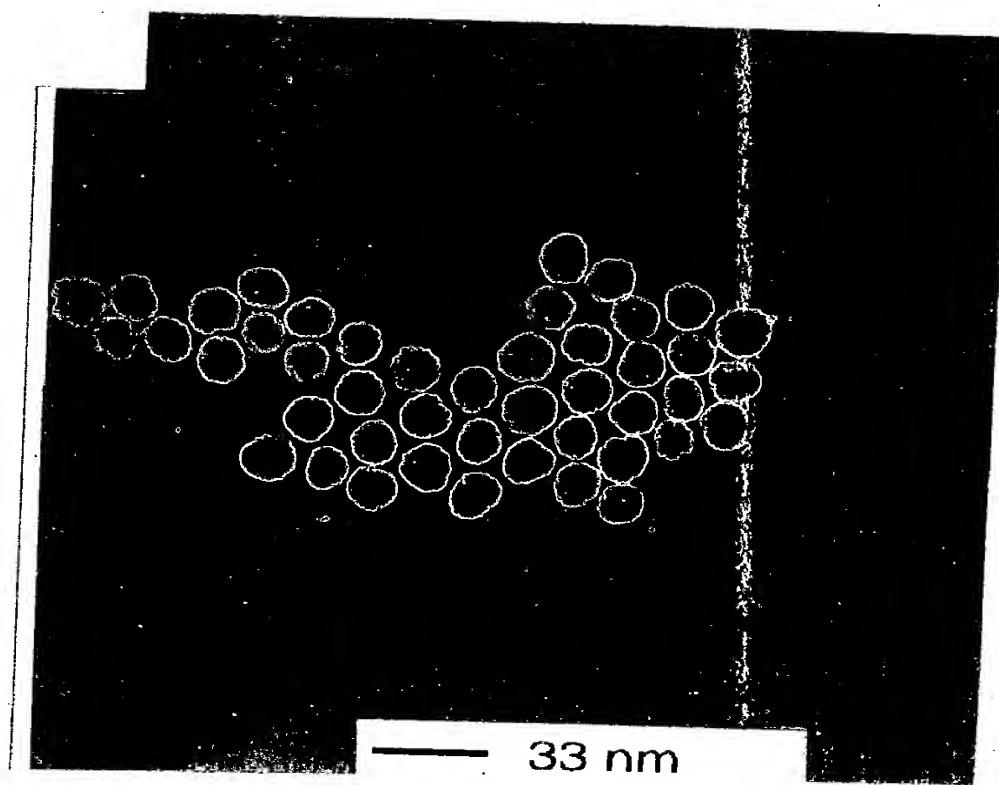
**FIG. 8B**



**FIG. 9A**

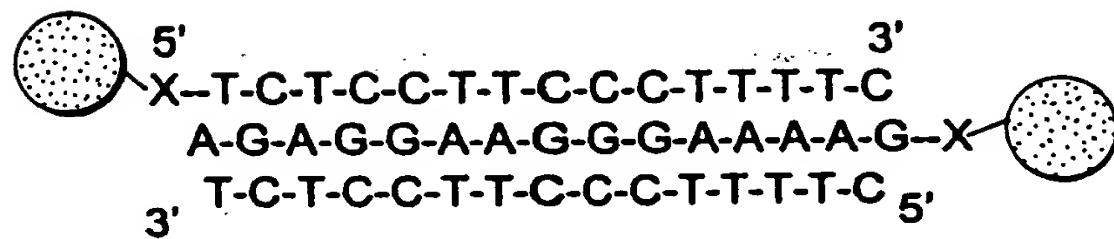
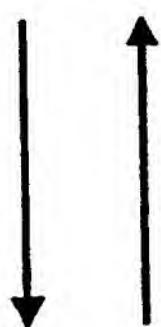
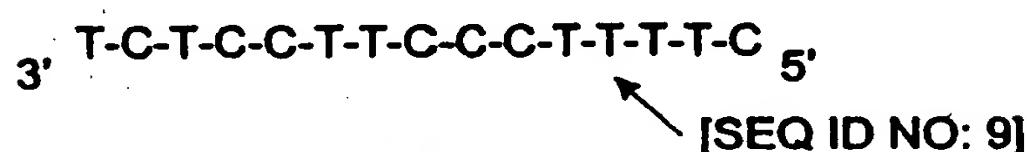
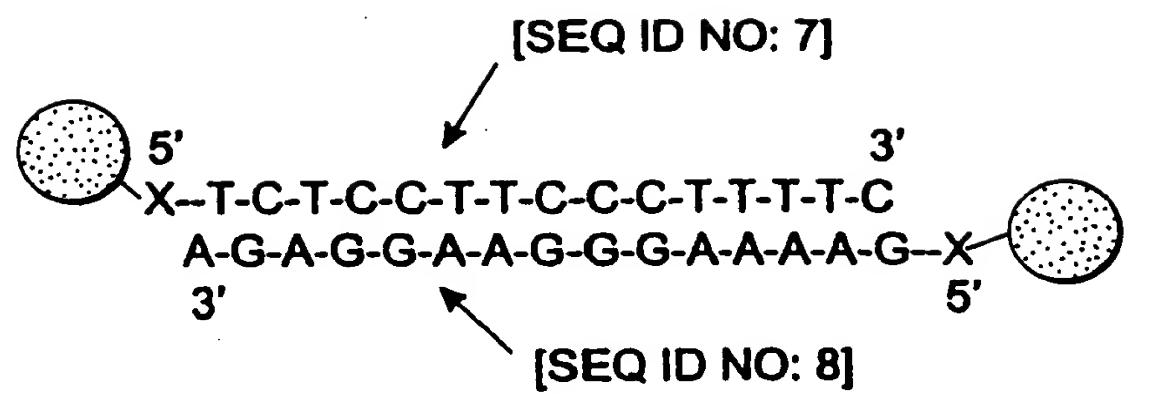


**FIG. 9B**

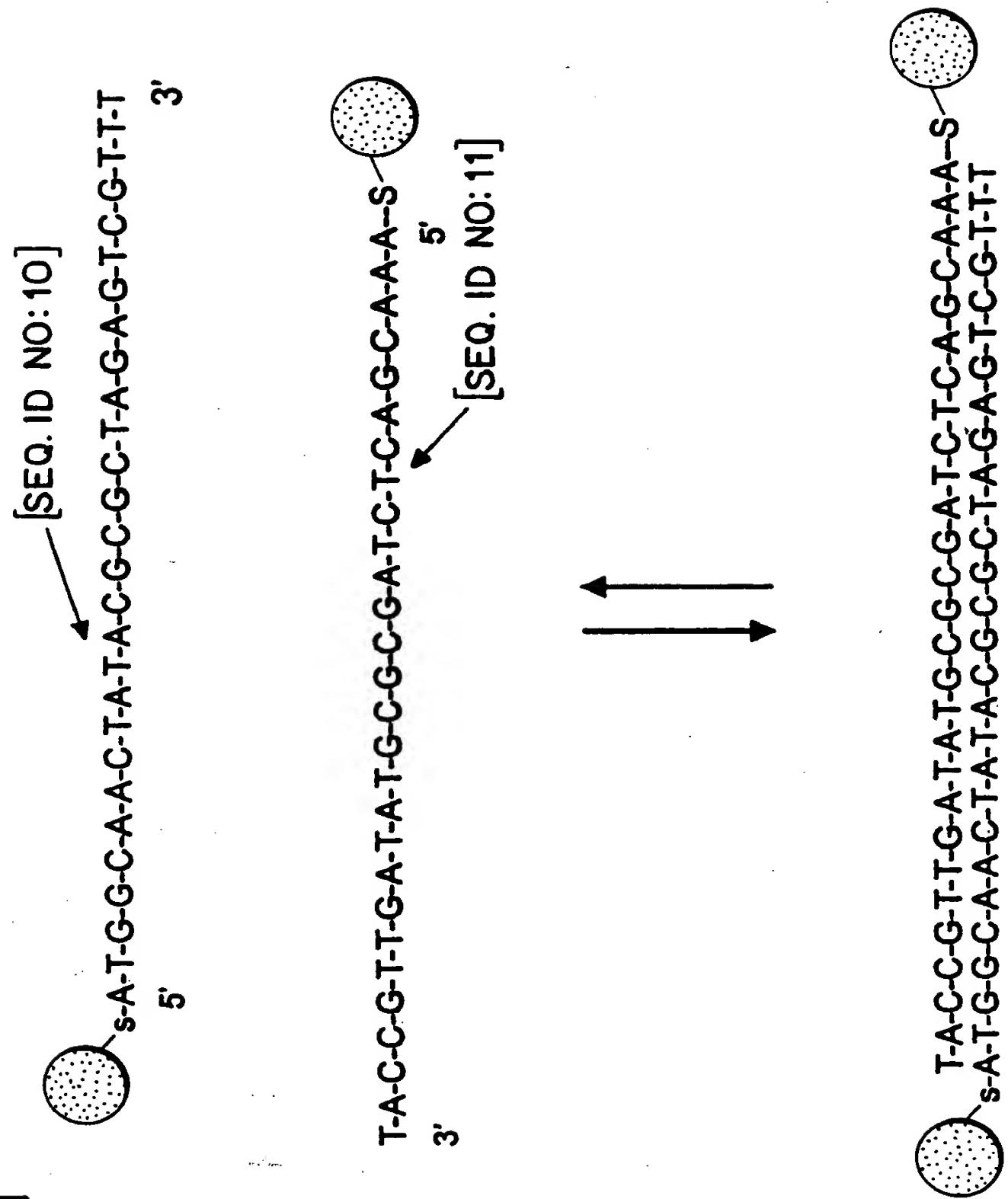


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## FIG. 10



# FIG. II



## FIG. 12A

Complementary Target  
[SEQ. ID NO:12]

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C  
5' A-G-C-A-T-G-G-T-C-G-A-T-A-G-G-A-A-A-C-G-A-C-T-C-T-A-G-C-G-C

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3

[SEQ. ID NO: 14]

2

T-T-T-G-C-T-G-A-G-A-T-C-G-C-G

[SEQ. ID NO: 13]

## FIG. 12B

Probes without Target

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C

2

T-T-T-G-C-T-G-A-G-A-T-C-G-C-G

## FIG. 12C

Half Complementary Target

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C  
5' A-G-C-A-T-G-G-T-C-G-A-T-A-G-G-A

2

T-T-T-G-C-T-G-A-G-A-T-C-G-C-G

4

[SEQ. ID NO: 15]

## FIG. 12D

Target - 6 bp

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C  
5' G-T-C-G-A-T-A-G-G-A-A-A-C-G-A-C-T-C-T-A-G-C-G-C

2

5

[SEQ. ID NO: 16]

## FIG. 12E

One bp Mismatch

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C  
5' A-G-C-A-T-G-G-T

2

T-T-T-G-C-T-G-A-G-A-T-C-G-C-G

6

[SEQ. ID NO: 17]

## FIG. 12F

Two bp Mismatch

1

3' T-C-G-T-A-C-C-A-G-C-T-A-T-C-C  
5' A-G-C-A-T-G

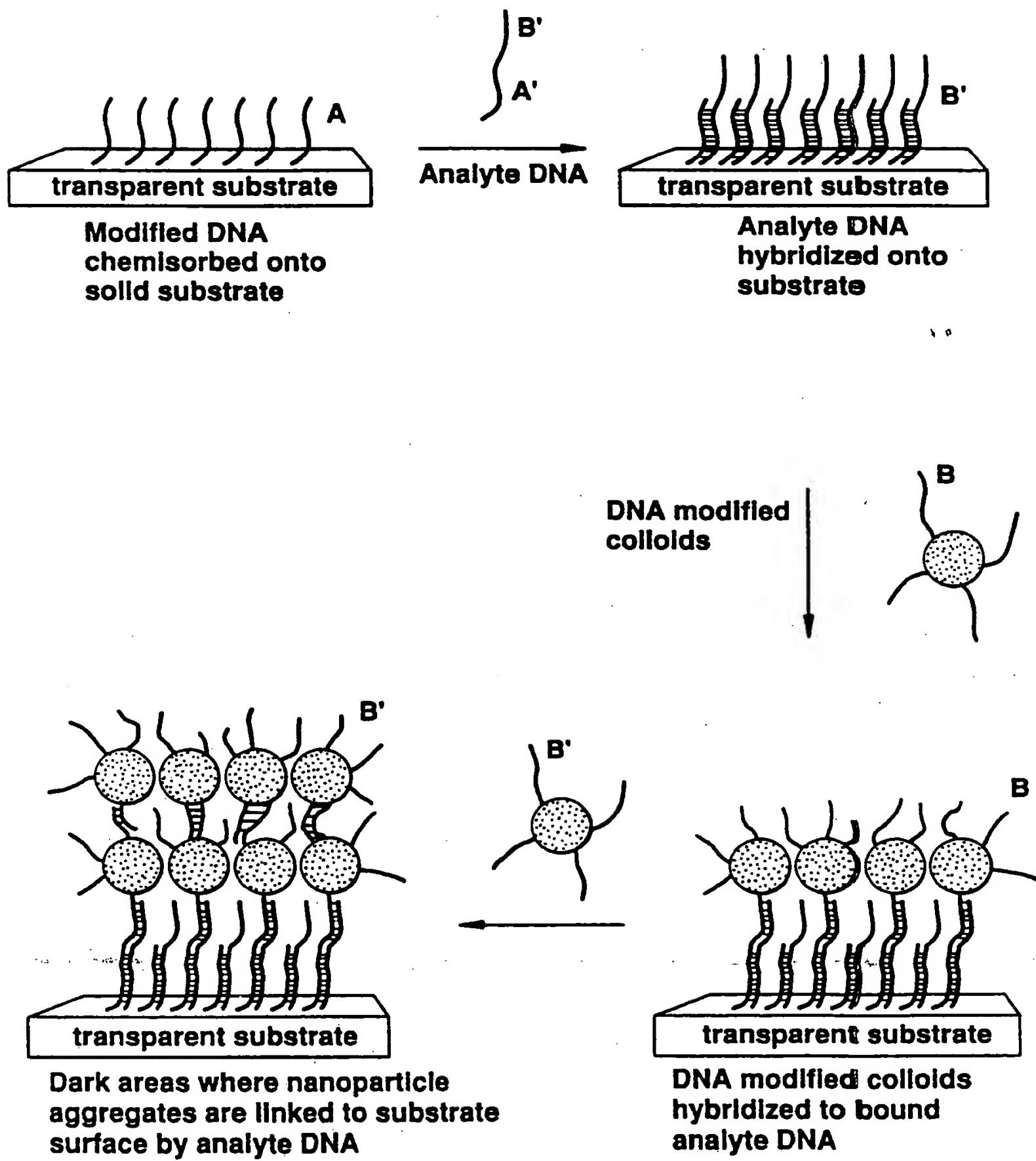
2

T-T-T-G-C-T-G-A-G-A-T-C-G-C-G

7

[SEQ. ID NO: 18]

FIG. 13A



# FIG. 13B

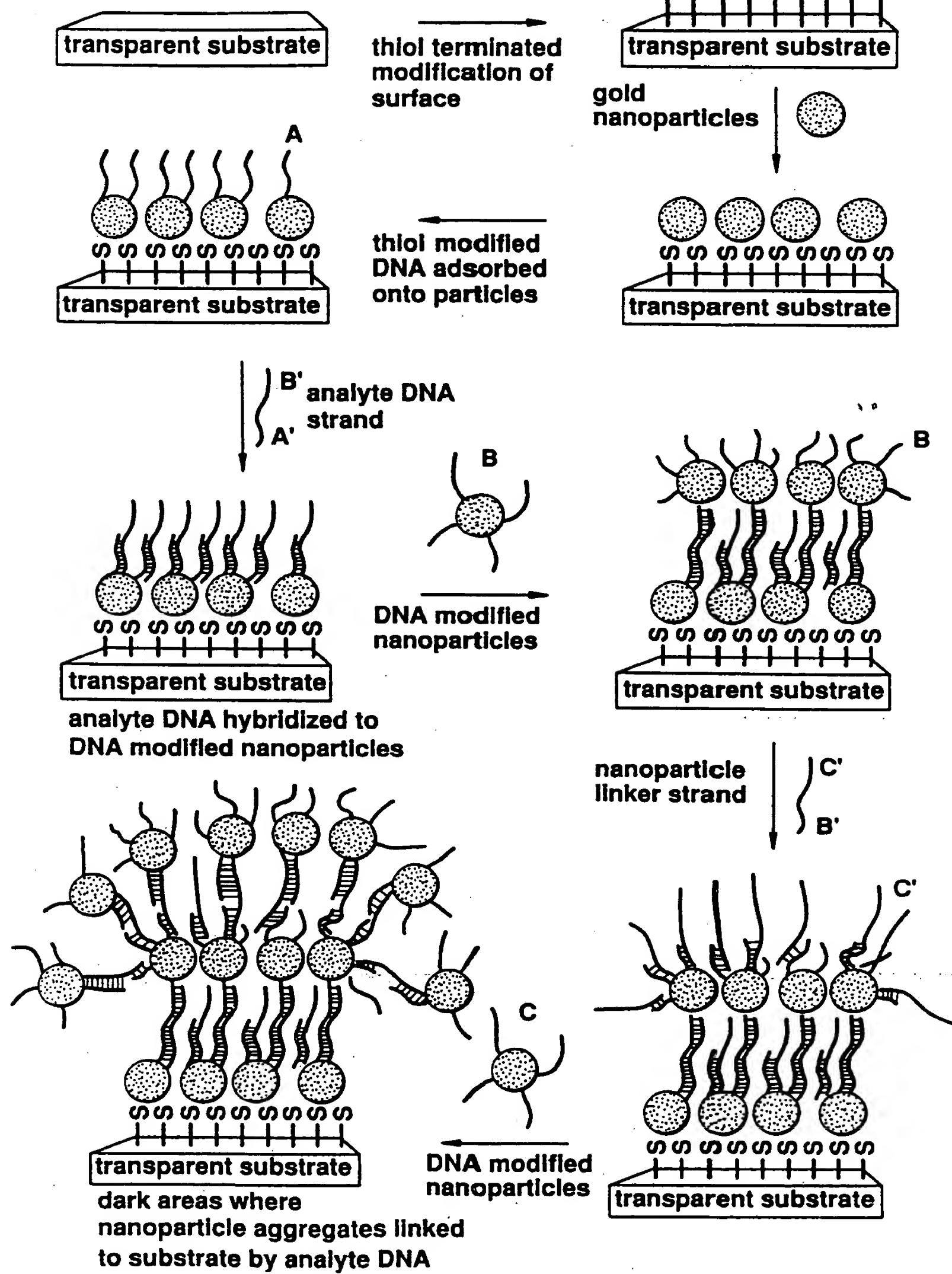


FIG. 14A

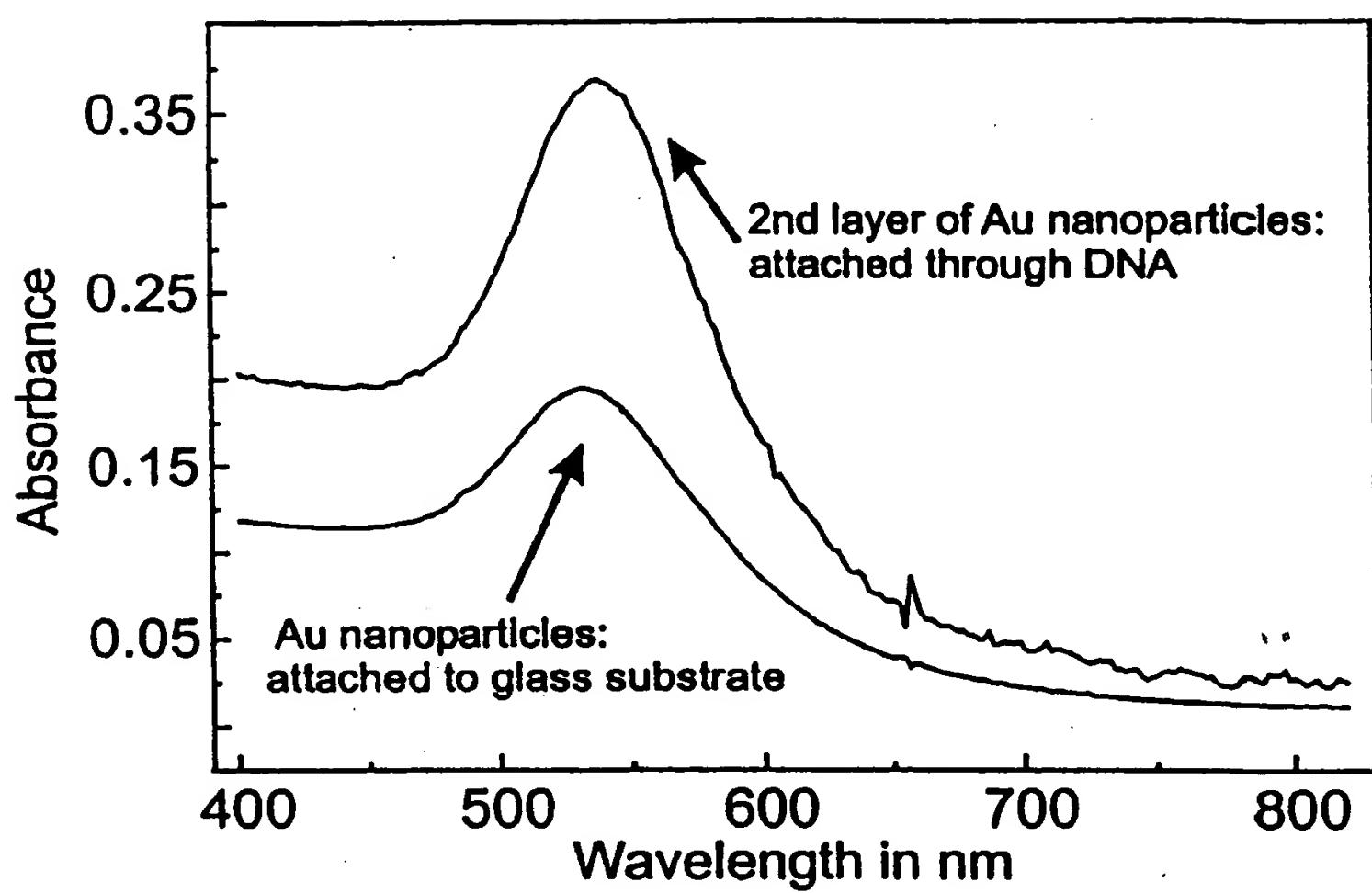
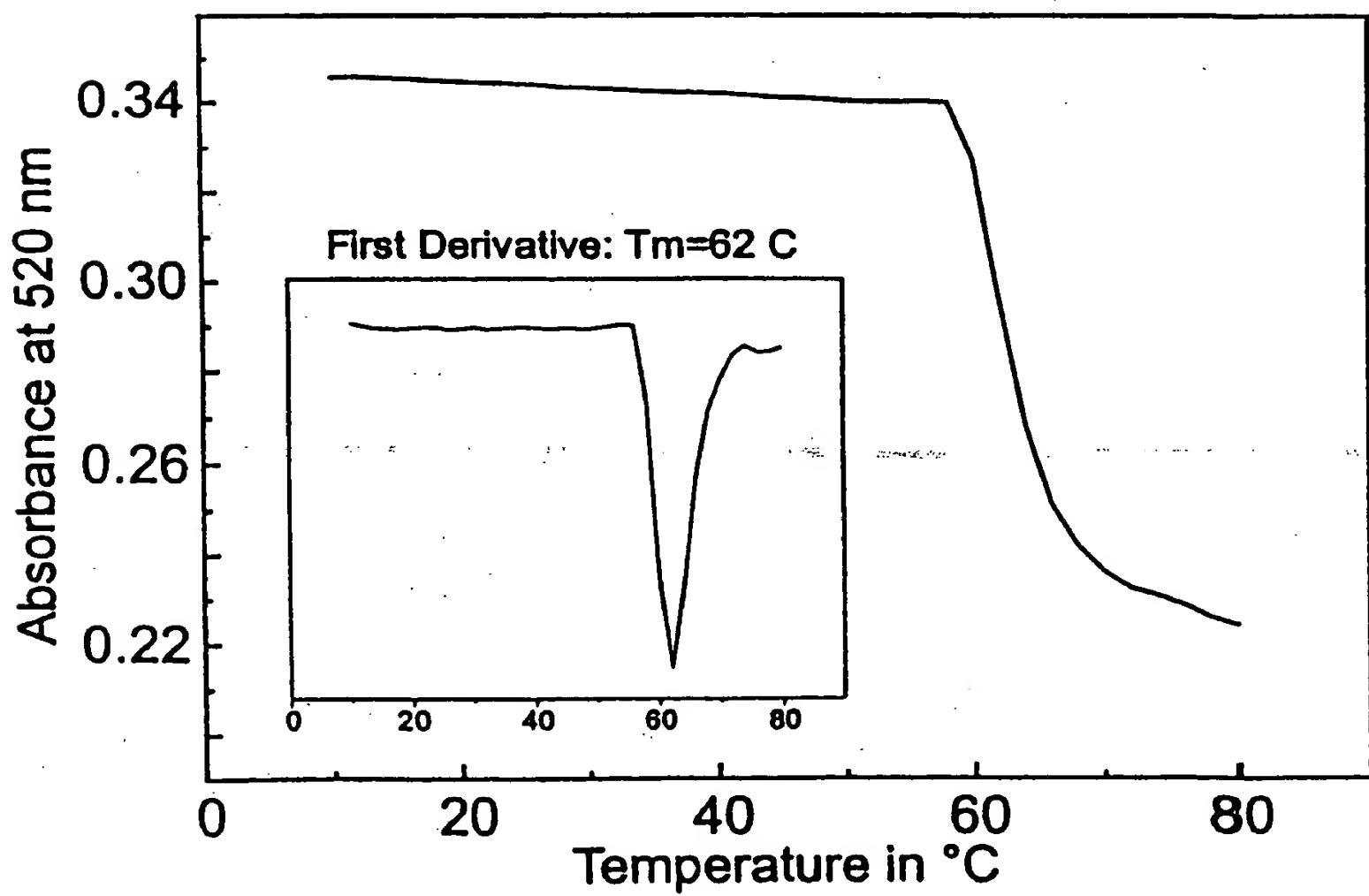


FIG. 14B





24 Base Template

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'  
 -S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S -  
 1                                                   2

**FIG. 16A**48 Base Template with Complementary 24 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-ATC-CTG-AAT-GCG 3'  
 -S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT TAG-GAC-TTA-CGC-S -  
 1                                                   2

**FIG. 16B****FIG. 16C**72 Base Template with Complementary 48 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-TAT-GCA-CAT-GCC-TTT-AGC-AAC-ATC-CTG-AAT-GCG 3'  
 -S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT-ATA-TAA-CCT-GCG-TTG-TAG-GAC-TTA-CGC-S -  
 1                                                   2

FIG. 17A

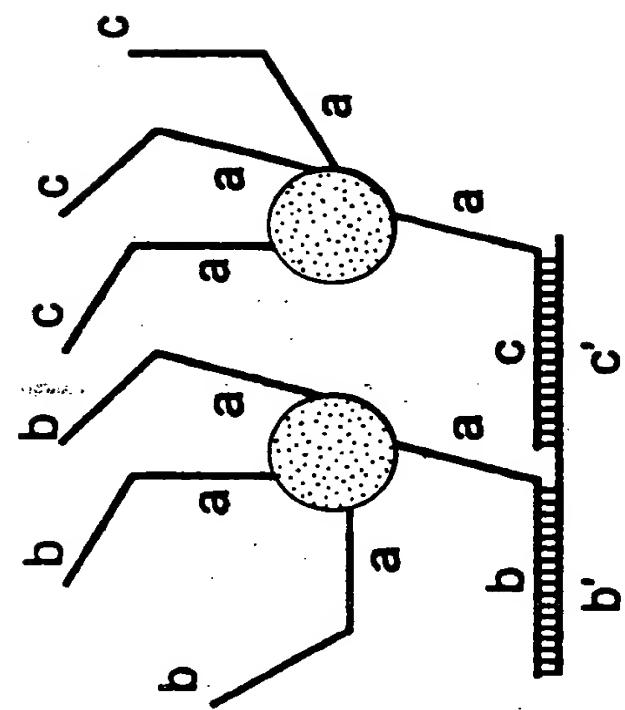


FIG. 17B

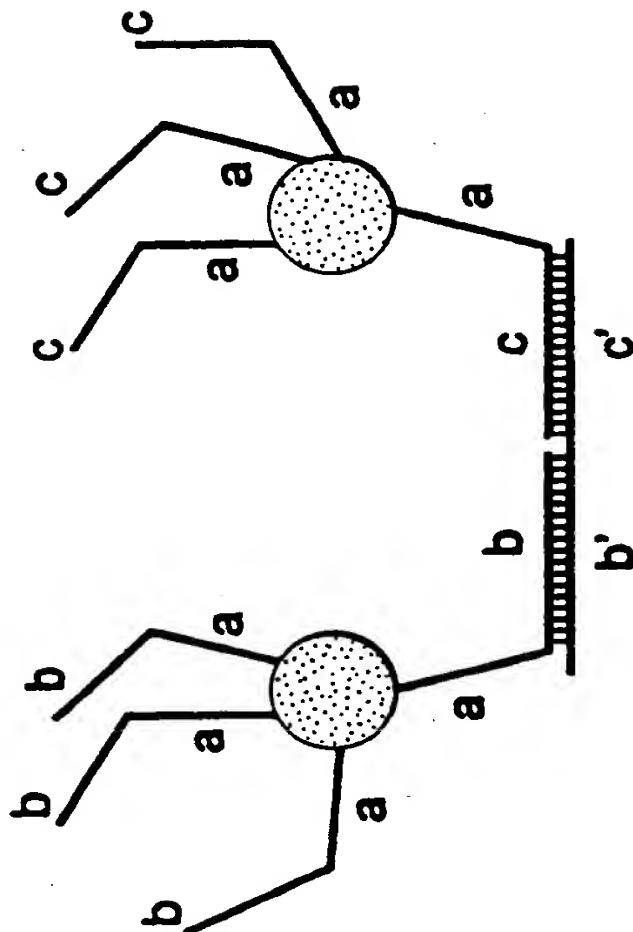


FIG. 17C

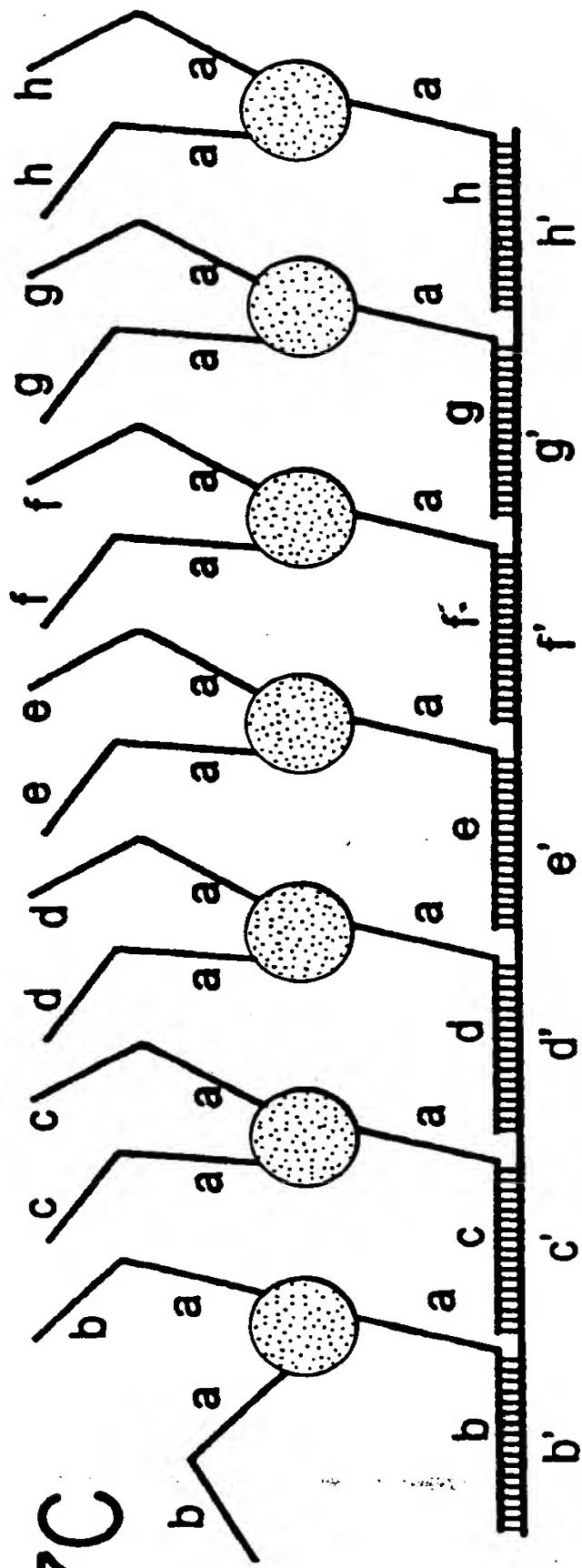


FIG. 17D

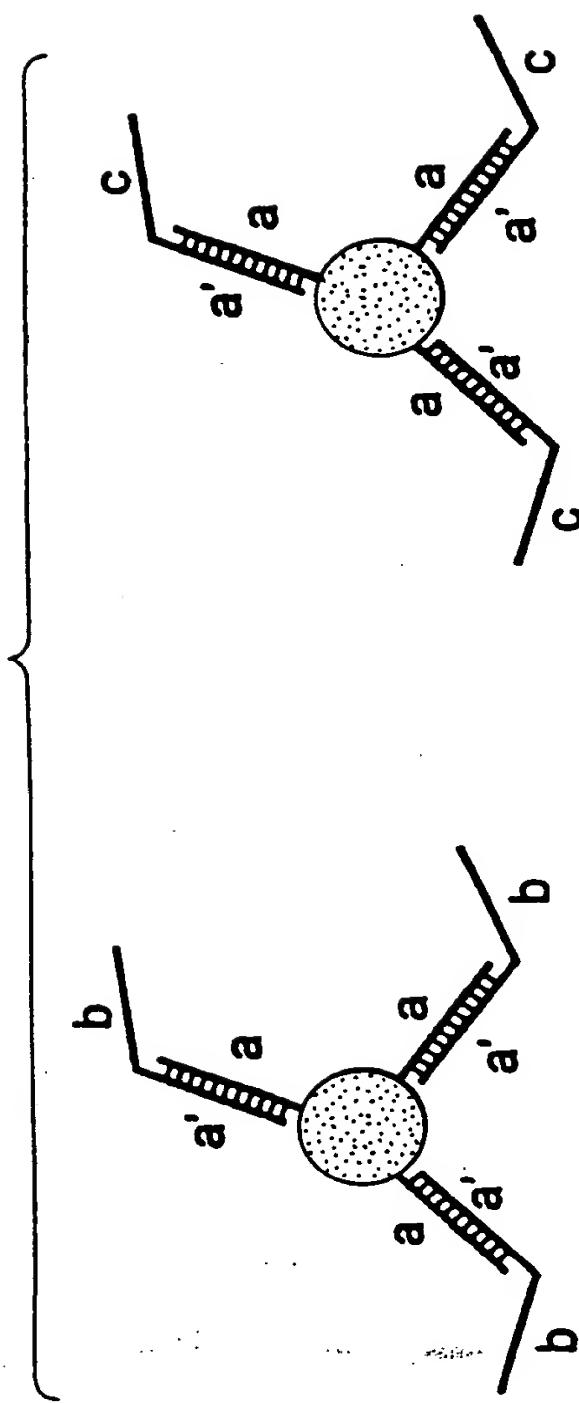


FIG. 17E

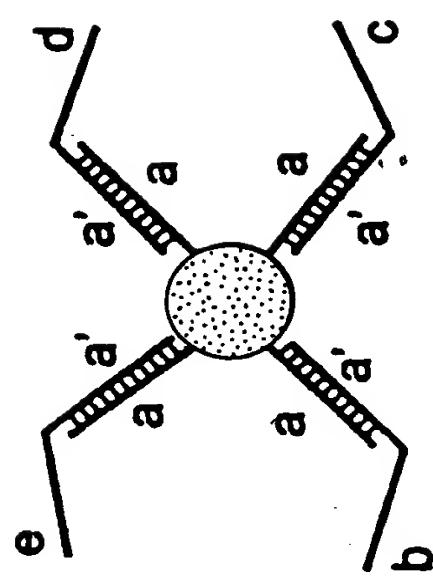


FIG. 18

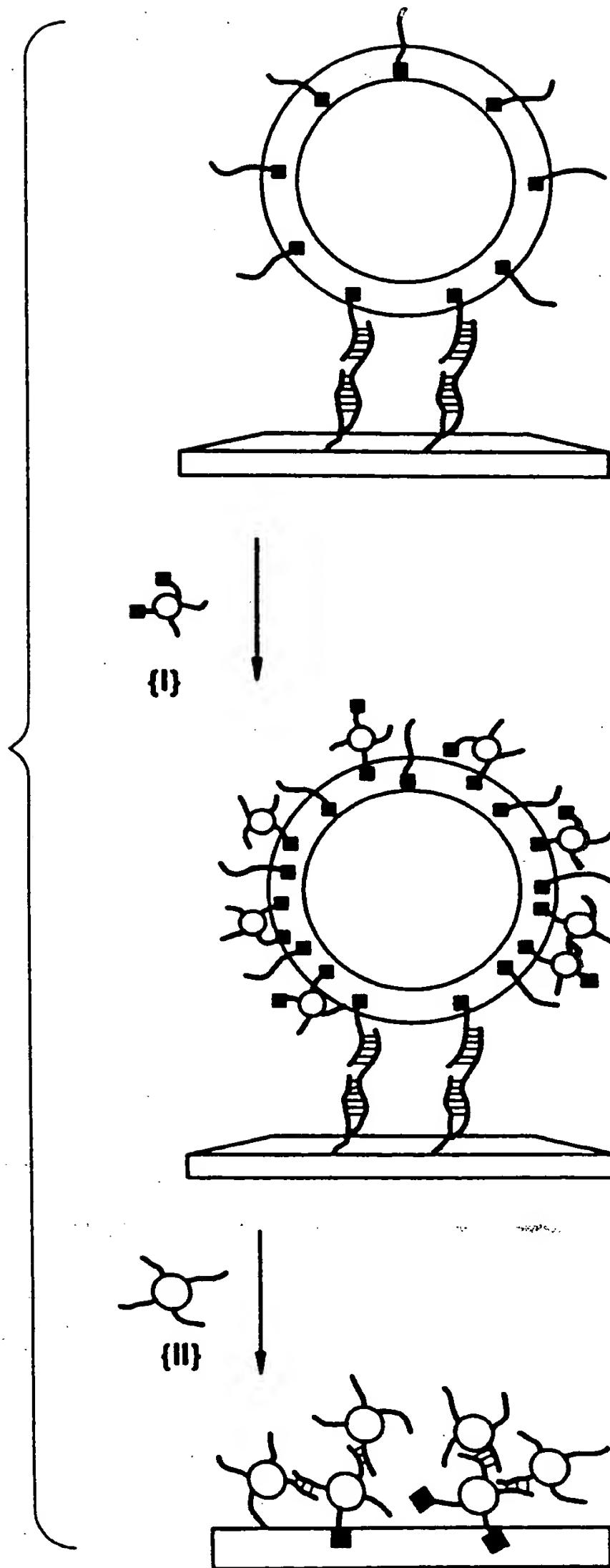


FIG. 19A

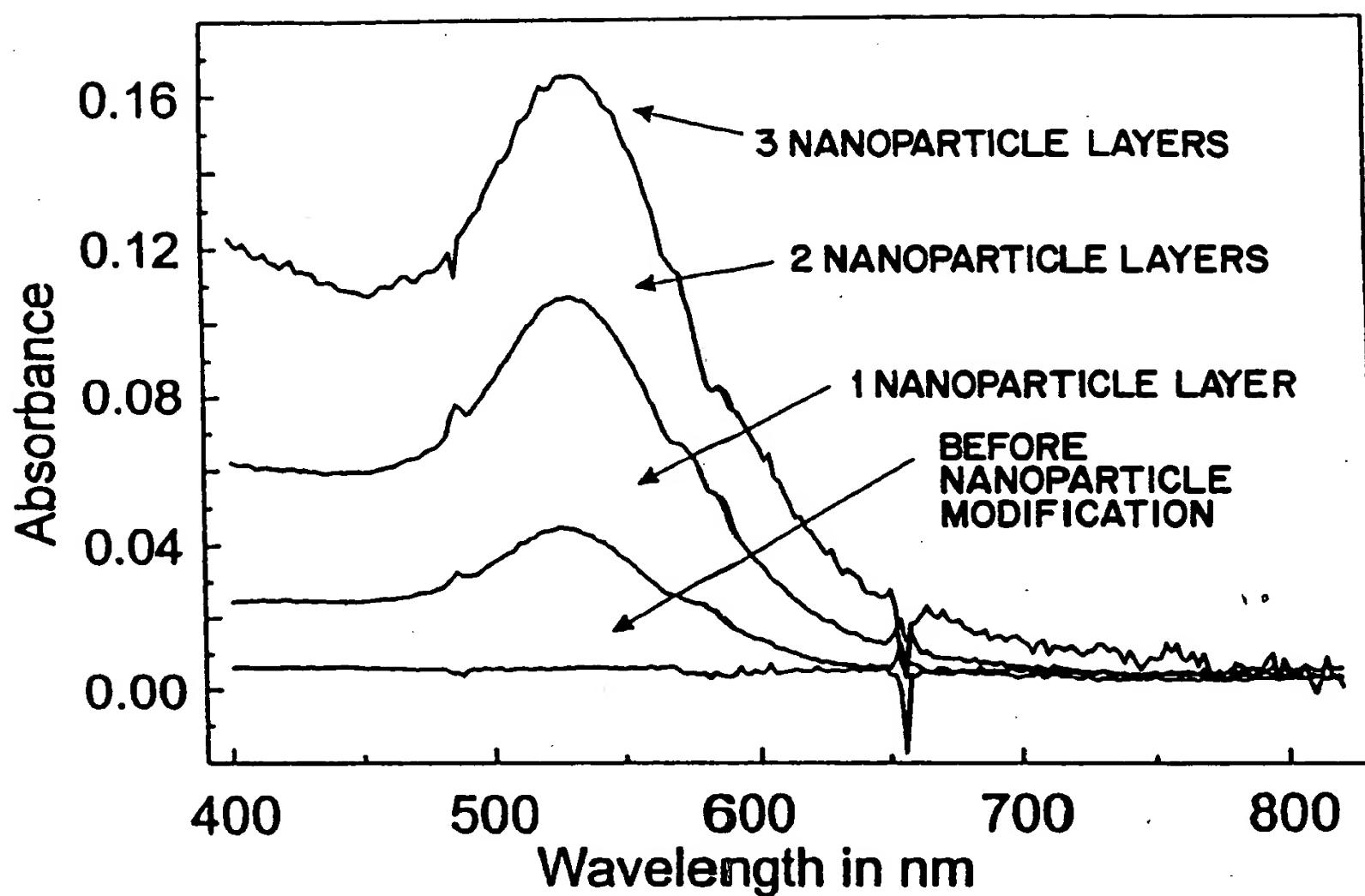


FIG. 19B

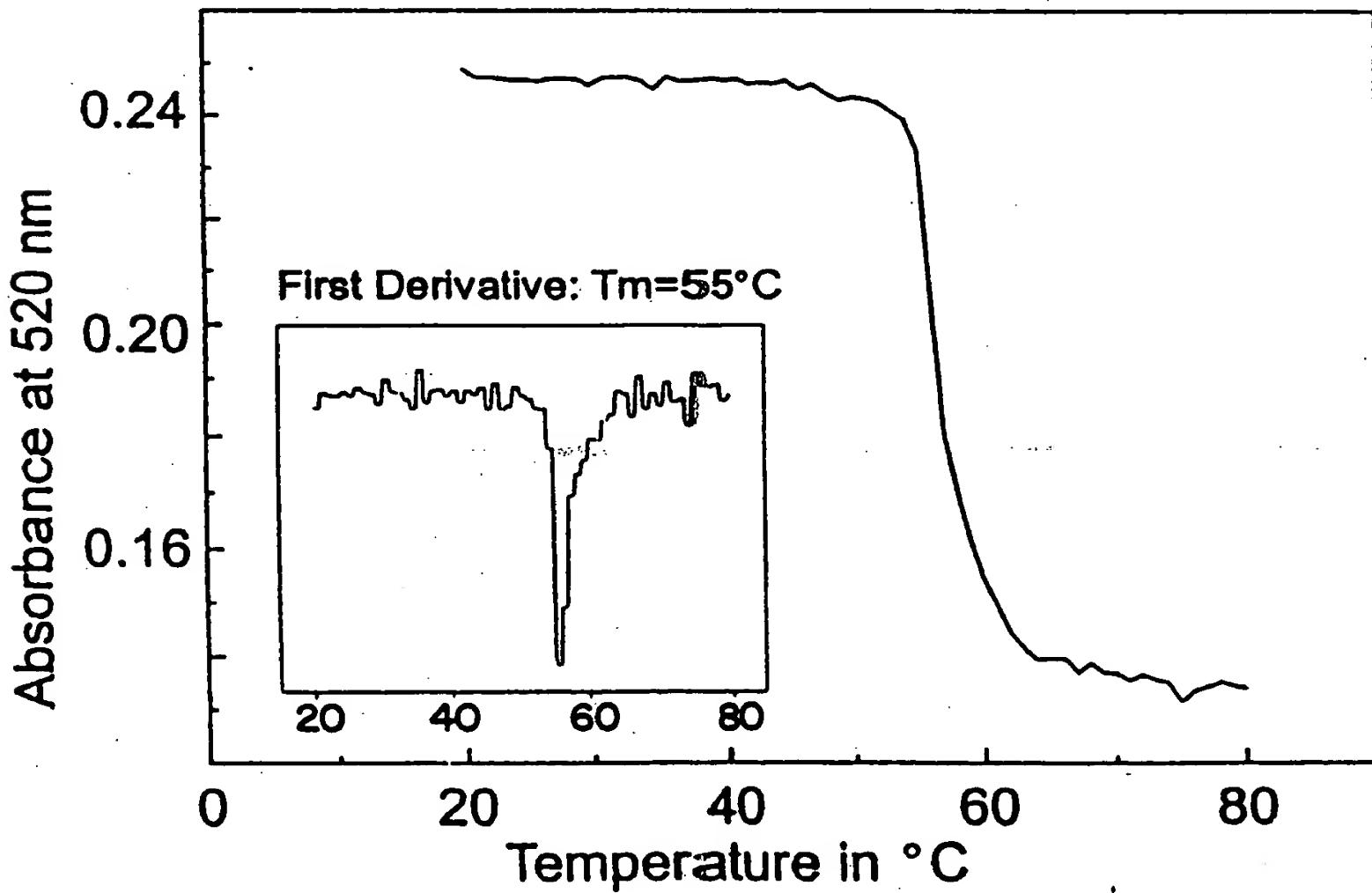


FIG. 20A

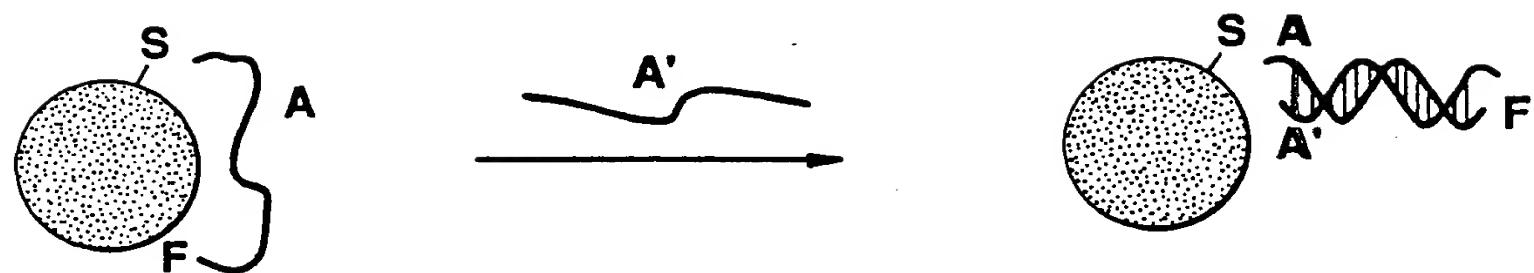
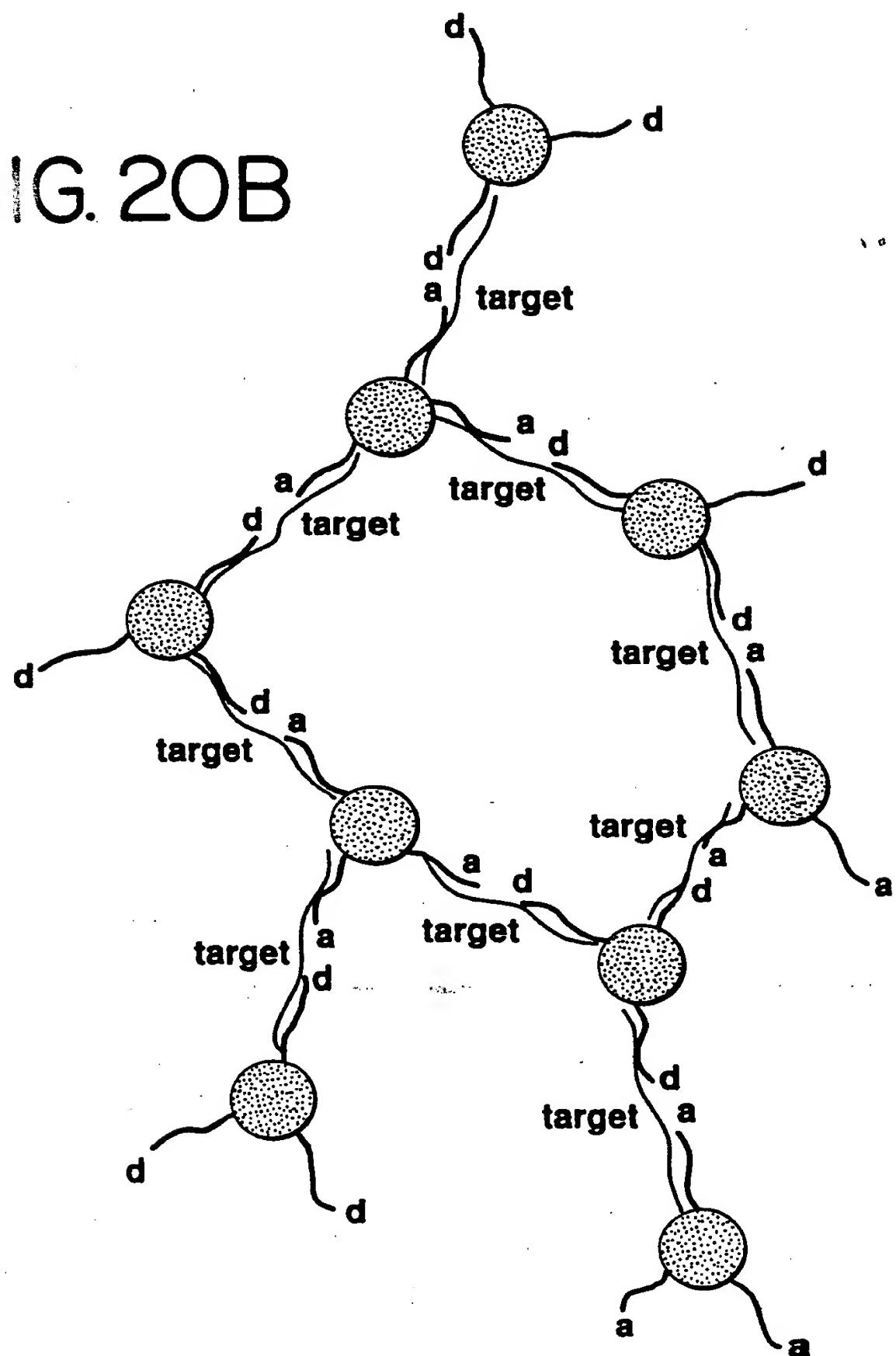


FIG. 20B



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FIG. 2|

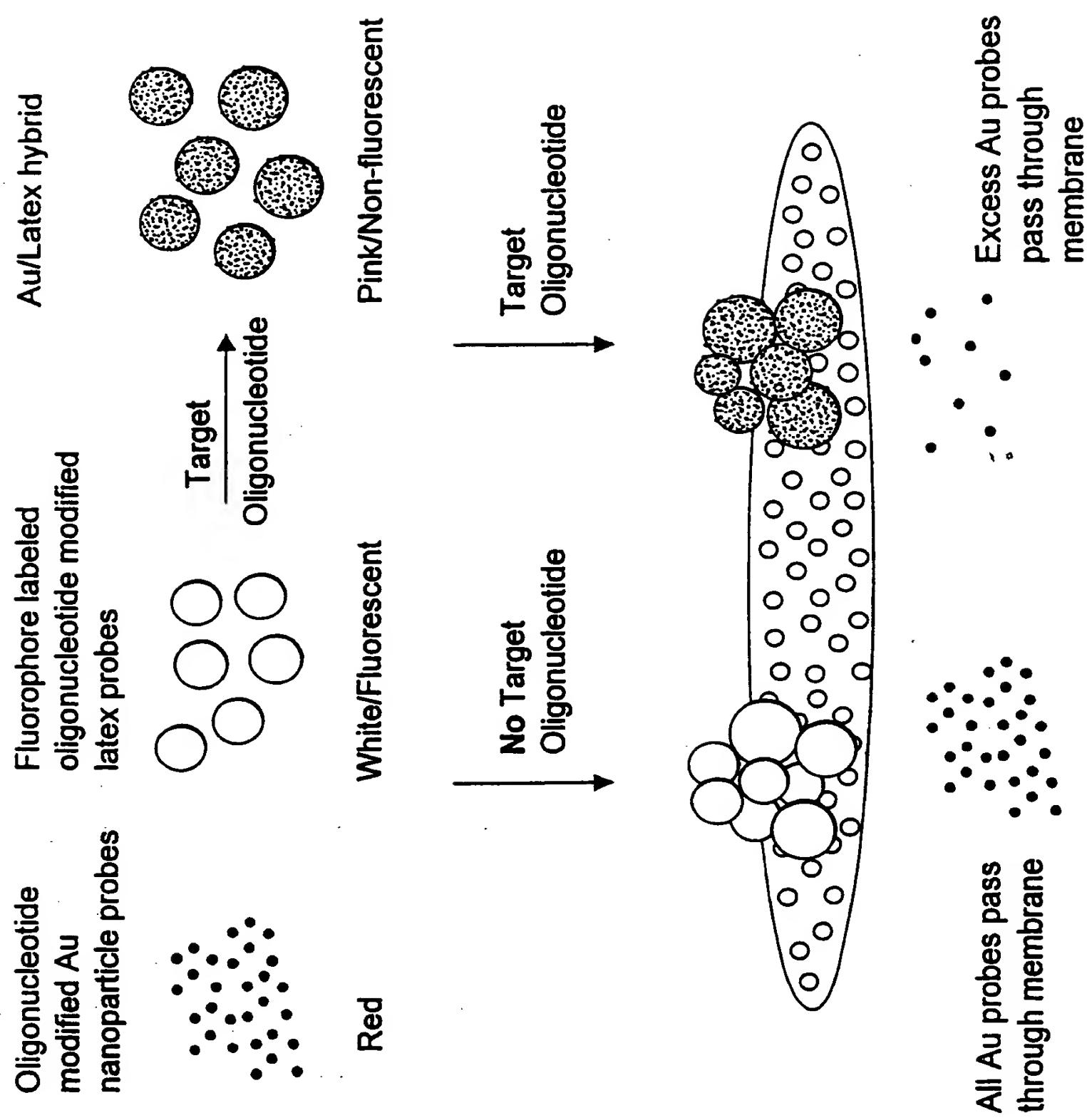
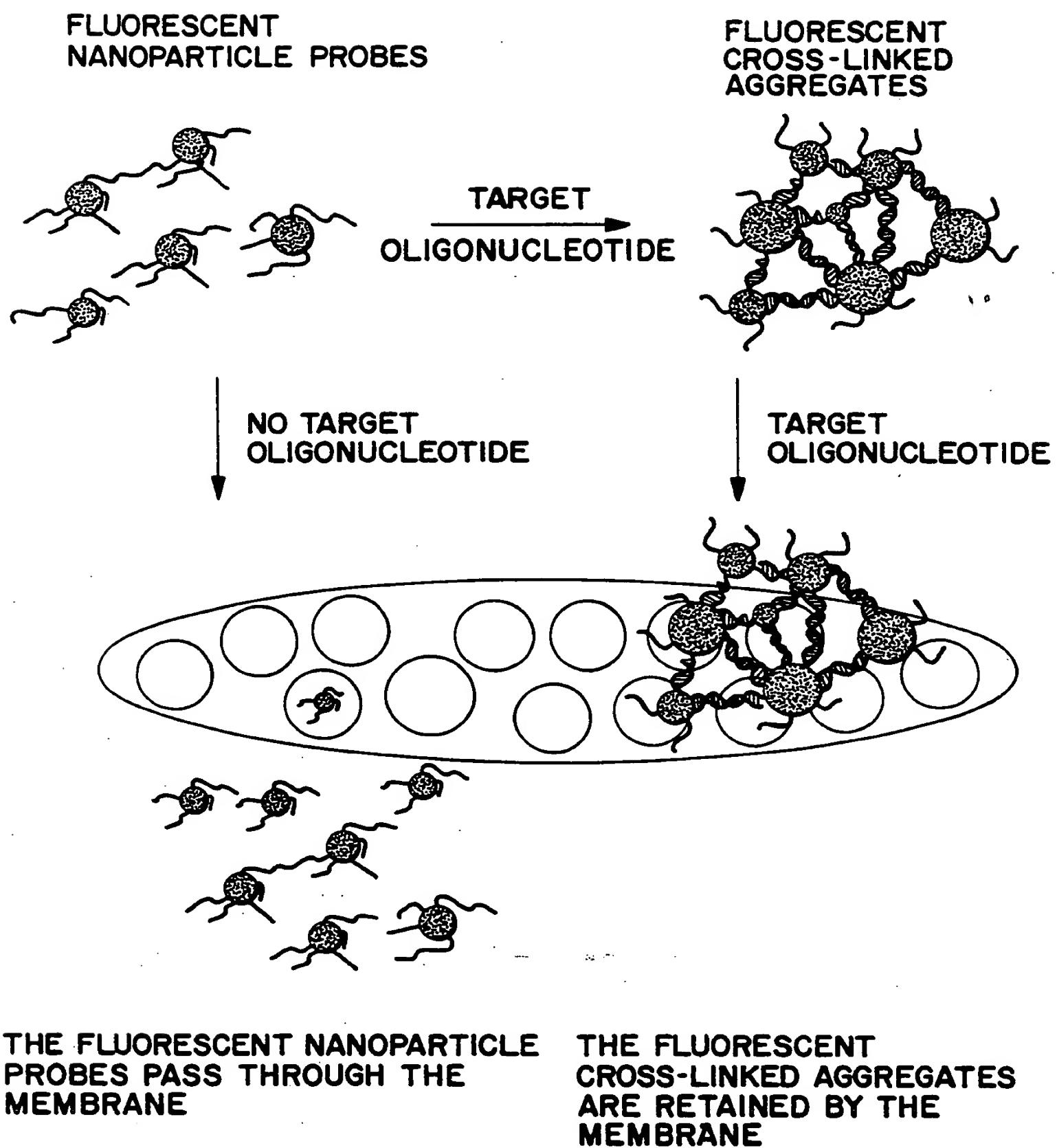


FIG. 22



# FIG. 23

## Anthrax PCR Product

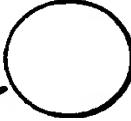
5'G GCG GAT GAG TCA GTA GTT AAG GAG GCT CAT AGA GAA GTA ATT AAT  
3'C CGC CTA CTC AGT CAT CAA TTC CTC CGA GTA TCT CTT CAT TAA TTA

TCG TCA ACA GAG GGA TTA TTG TTA AAT ATT GAT AAG GAT ATA AGA AAA  
AGC AGT TGT CTC CCT AAT AAC AAT TTA TAA CTA TTC CTA TAT TCT TTT

ATA TTA TCC AGG GTT ATA TTG TAG AAA TTG AAG ATA CTG AAG GGC TT 3'  
TAT AAT AGG TCC CAA TAT AAC ATC TTT AAC TTC TAT GAC TTC CCG AA 5'

## 141 mer Anthrax PCR product [SEQ ID NO:36]

3' CTC CCT AAT AAC AAT



[SEQ ID NO:37]

3' TTA TAA CTA TTC CTA



[SEQ ID NO:38]

## Oligonucleotide-Nanoparticle Probes

### Blocker Oligonucleotides

3' C CGC CTA CTC AGT CAT CAA TTC CTC CGA GT  
3' A TCT CTT CAT TAA TTA AGC AGT TGT  
3' TAT TCT TTT TAT AAT AGG TCC CAA TAT  
3' AAC ATC TTT AAC TTC TAT GAC TTC CCG AA

[SEQ ID NO:39]  
[SEQ ID NO:40]  
[SEQ ID NO:41]  
[SEQ ID NO:42]

FIG. 24

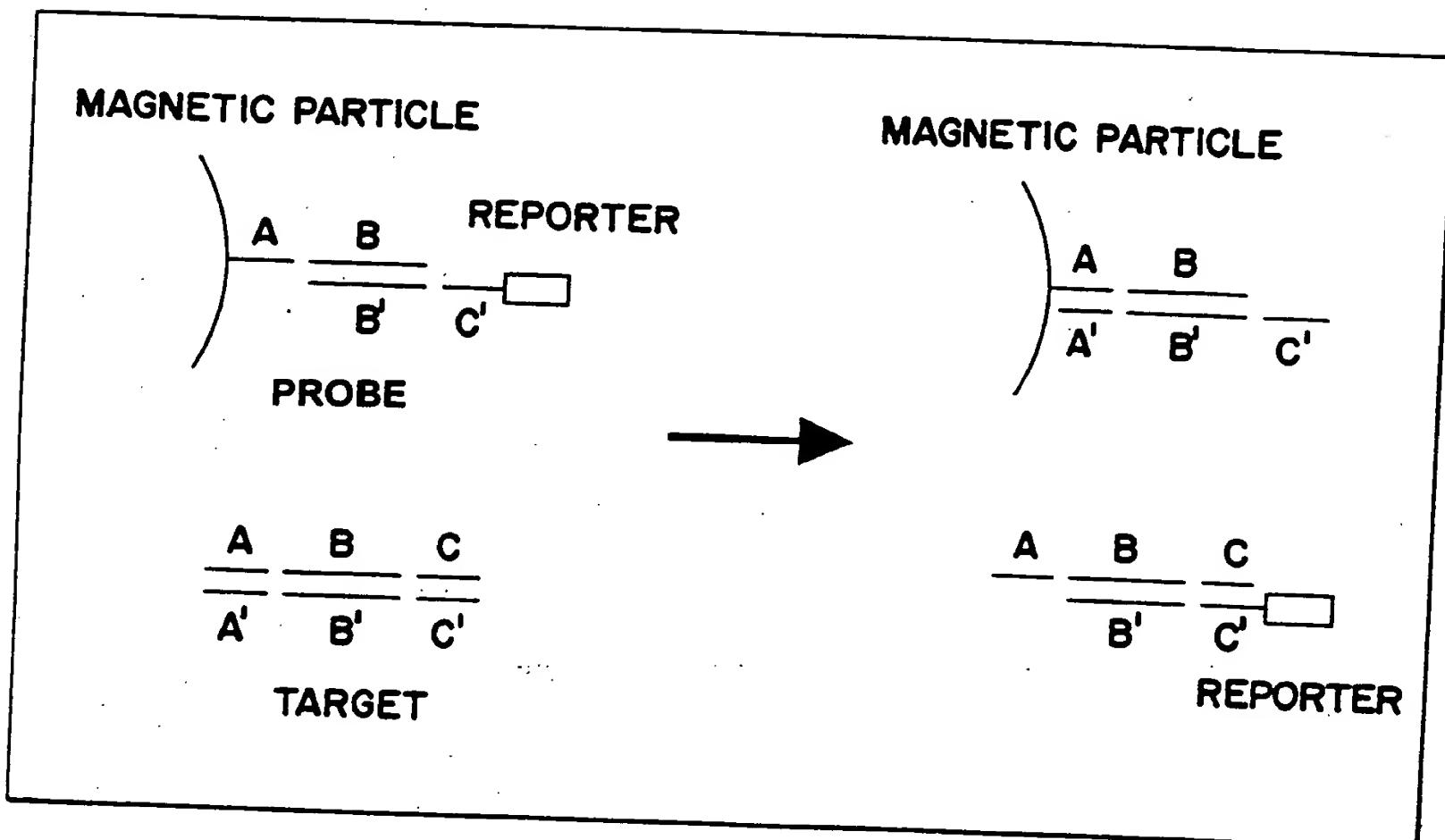
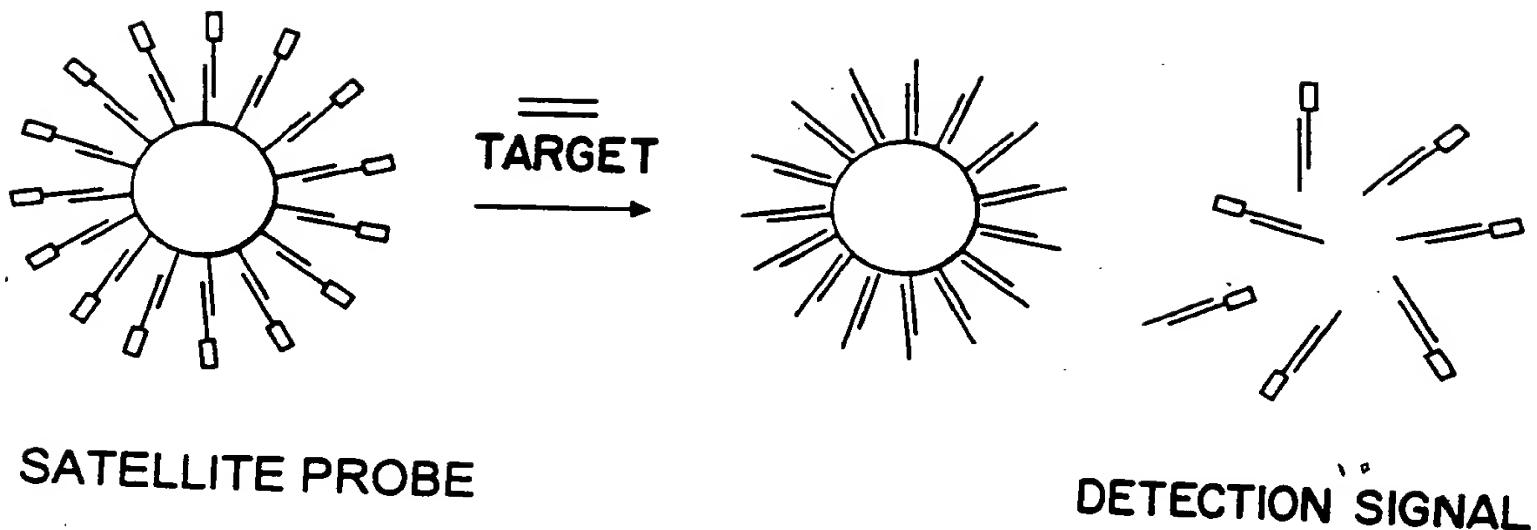


FIG. 25A

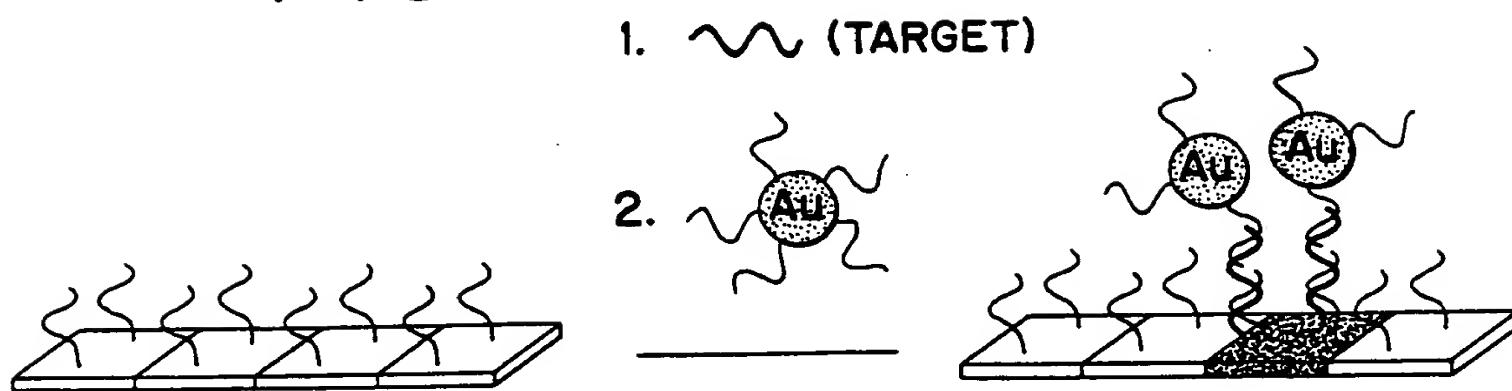
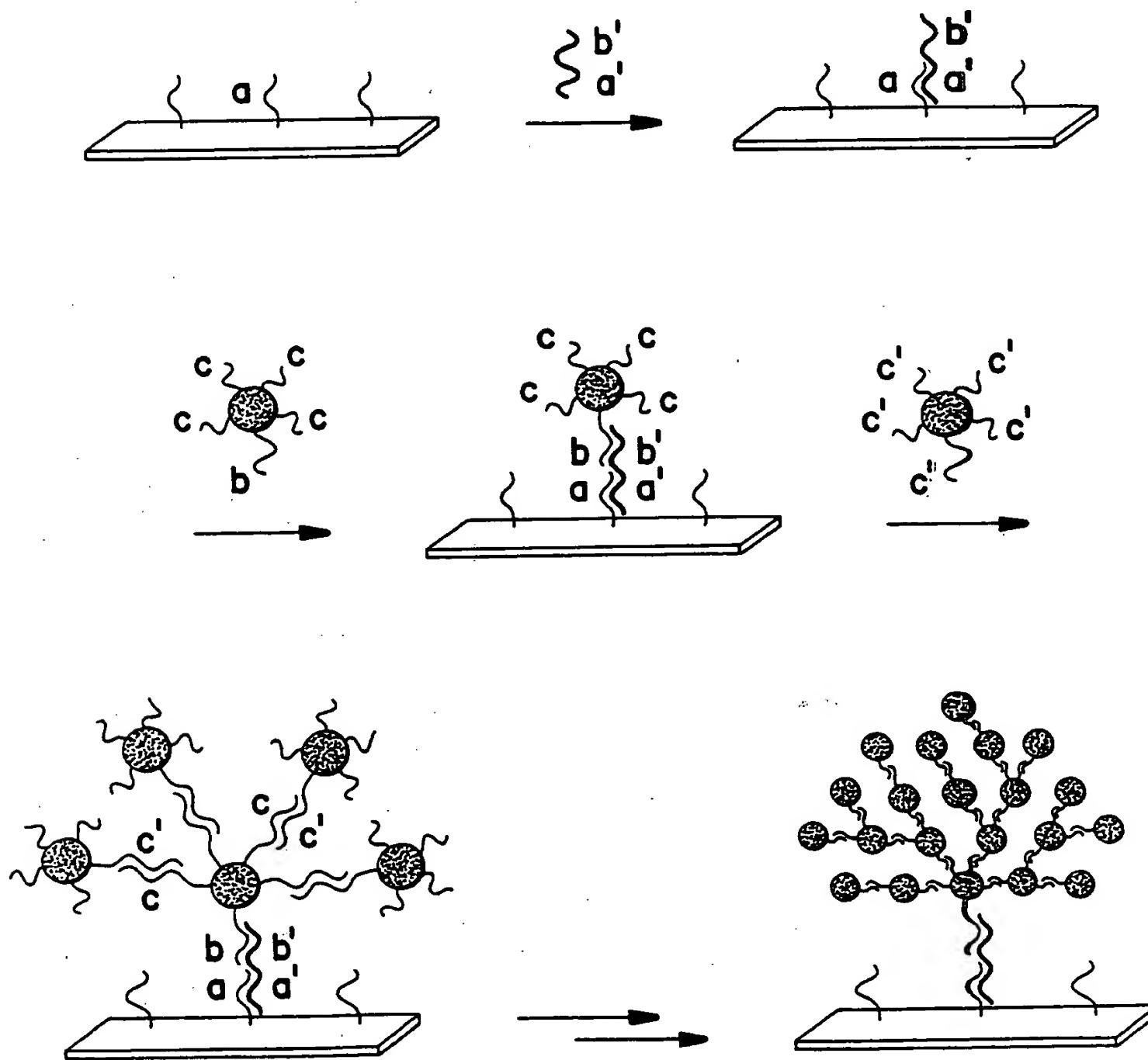
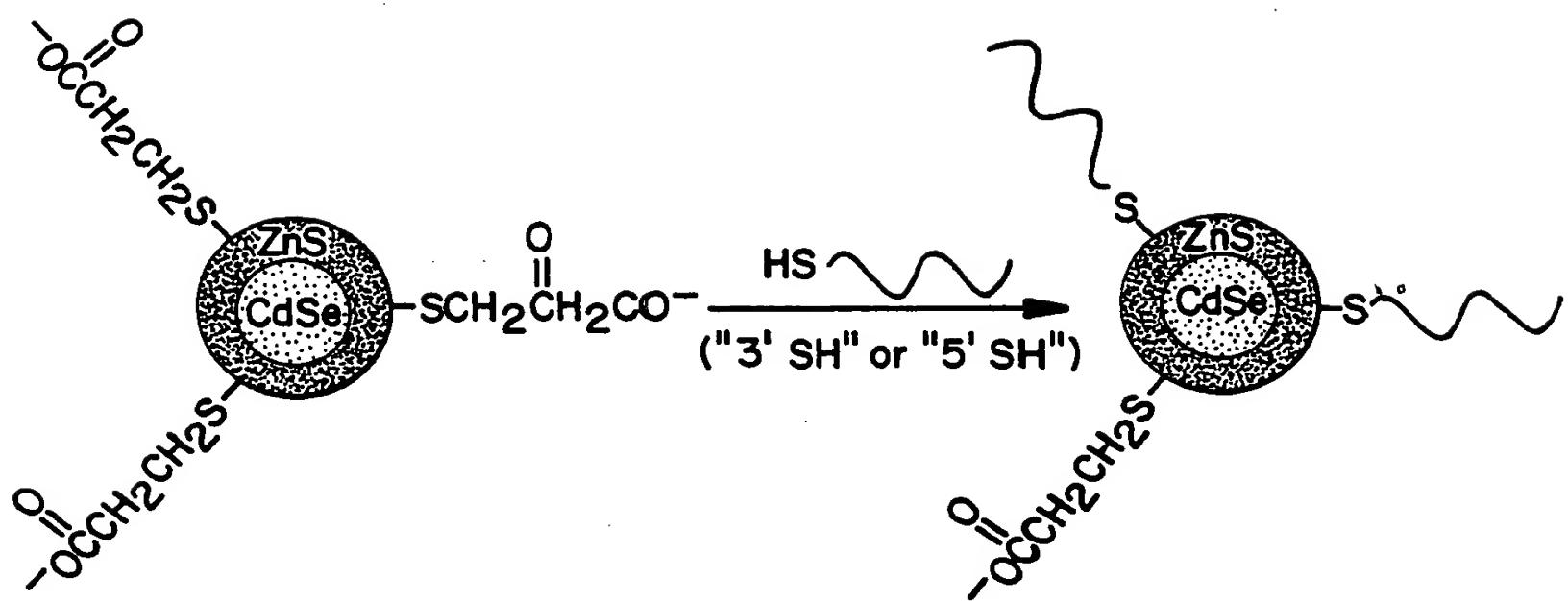


FIG. 25B



# FIG. 26A



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# FIG. 26B

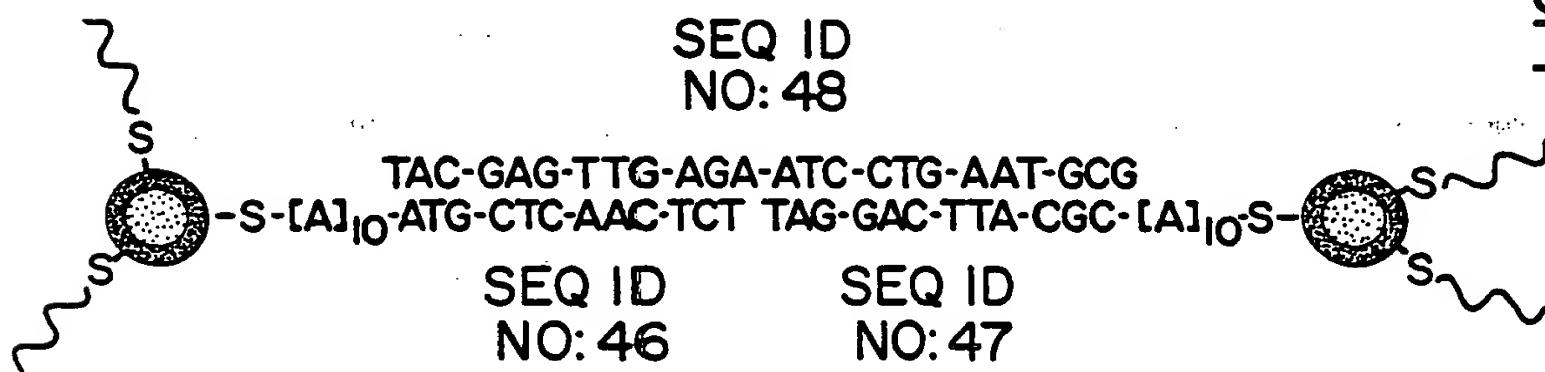


FIG. 27A

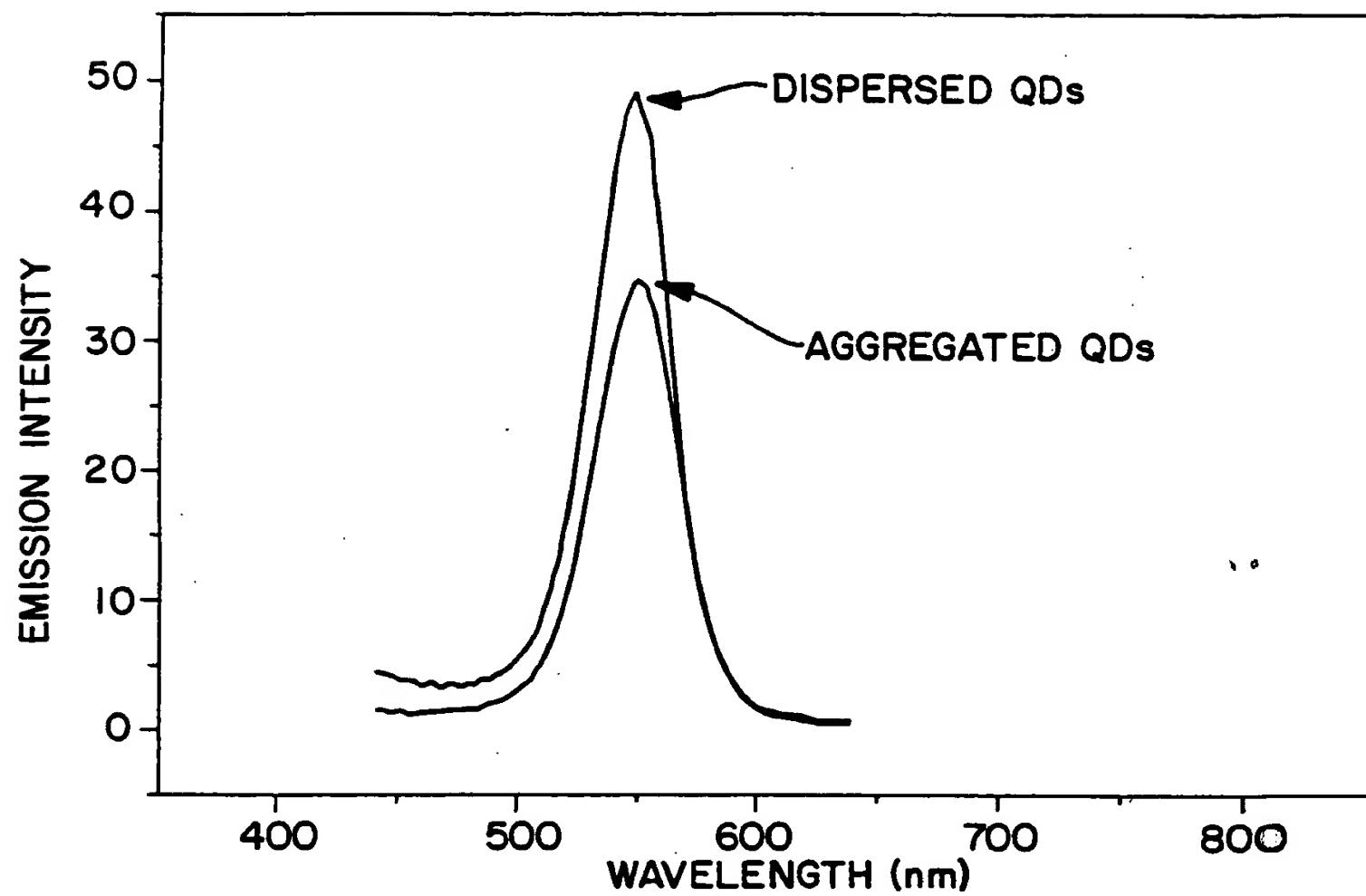
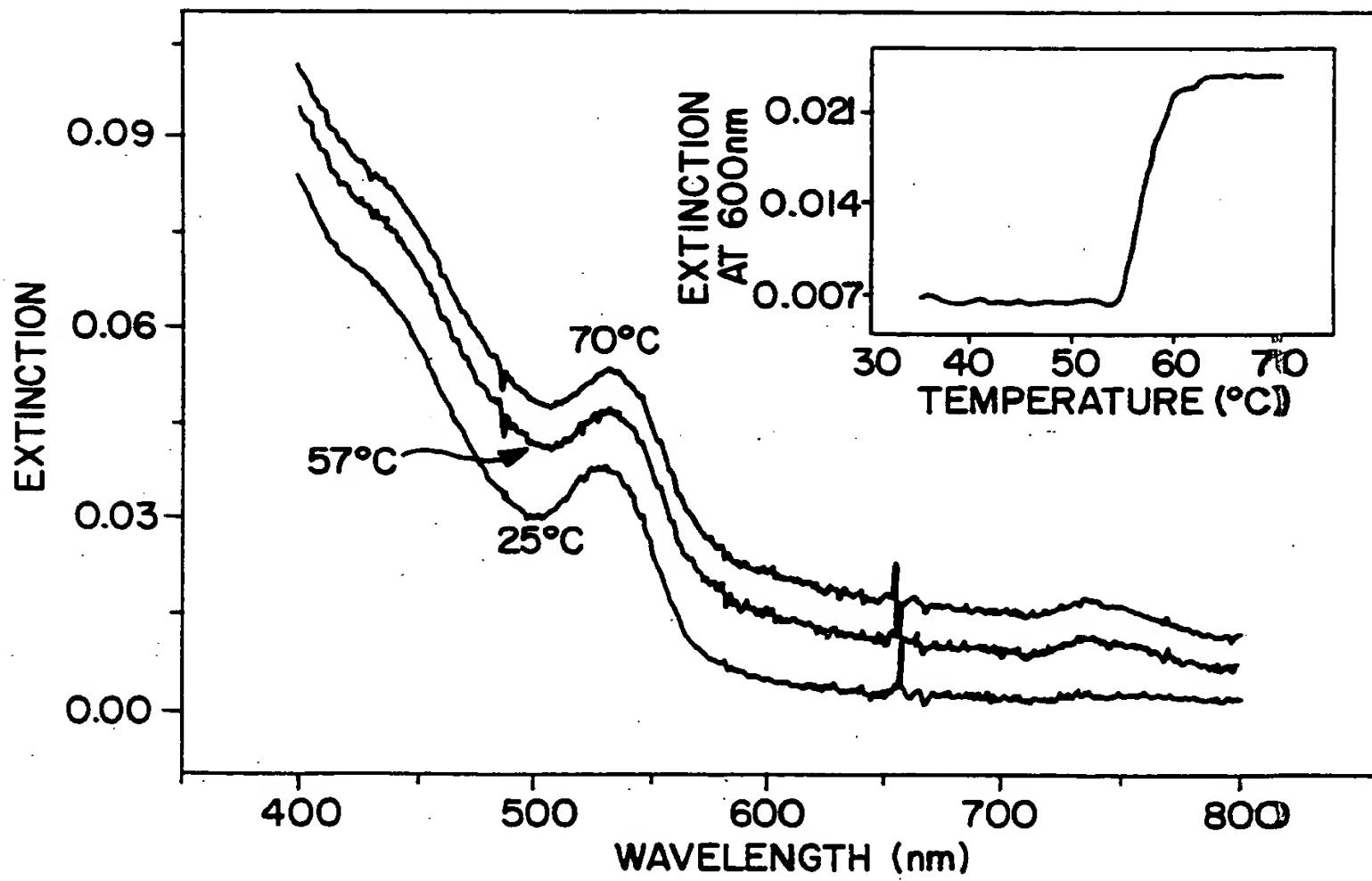
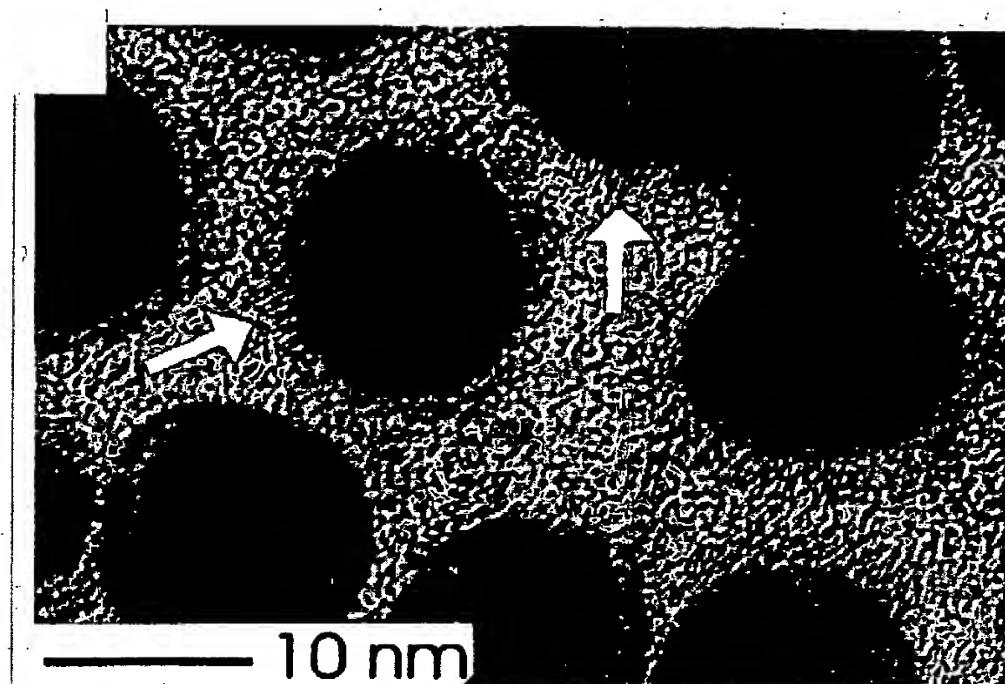


FIG. 27B



**FIG. 27C**

BEST AVAILABLE COPY

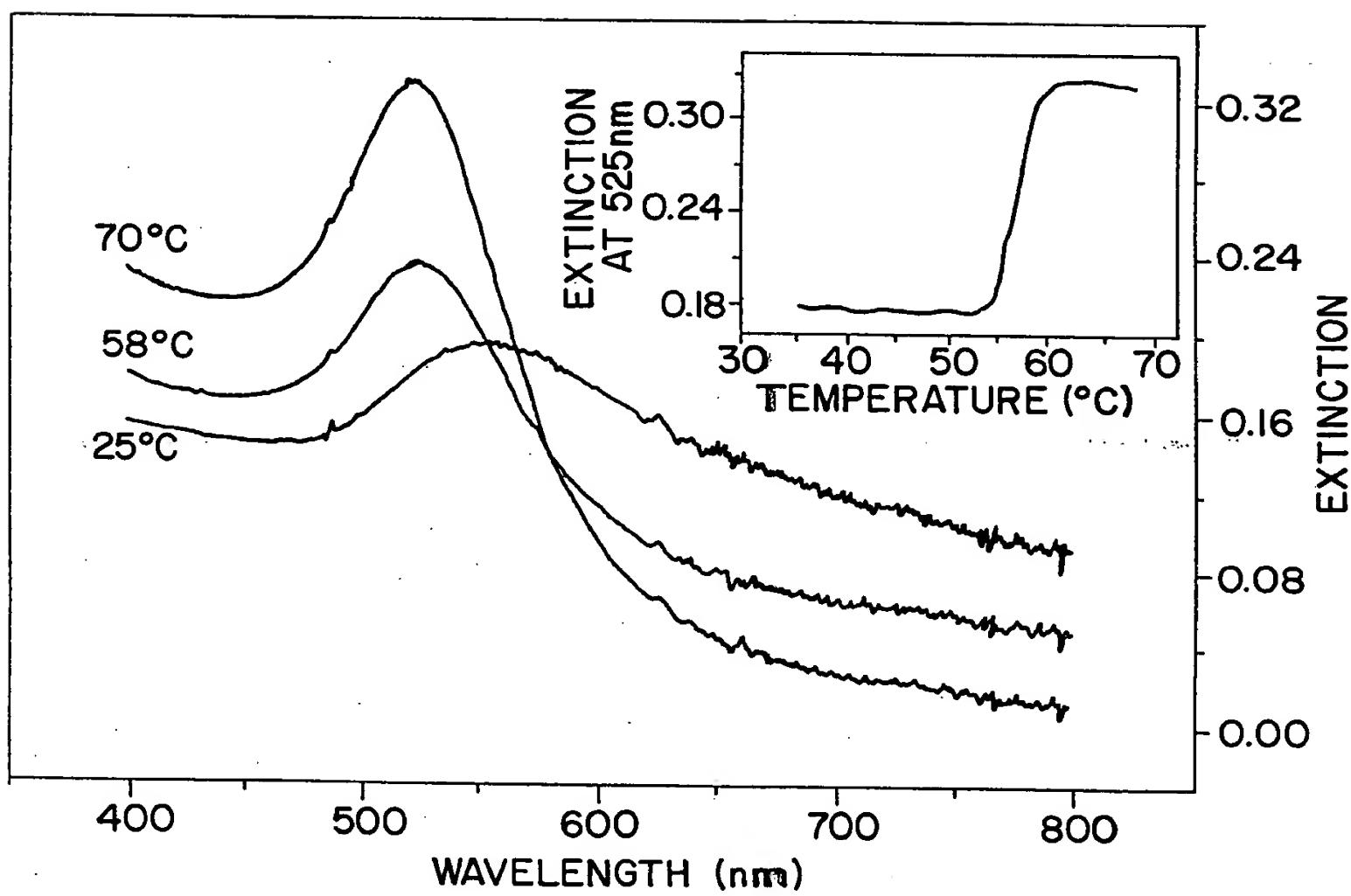
**FIG. 27D**

FIG. 28A

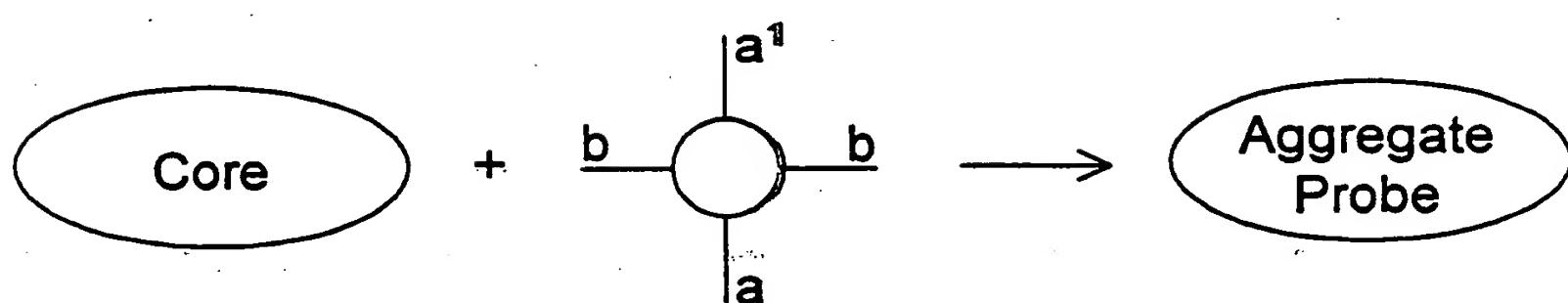
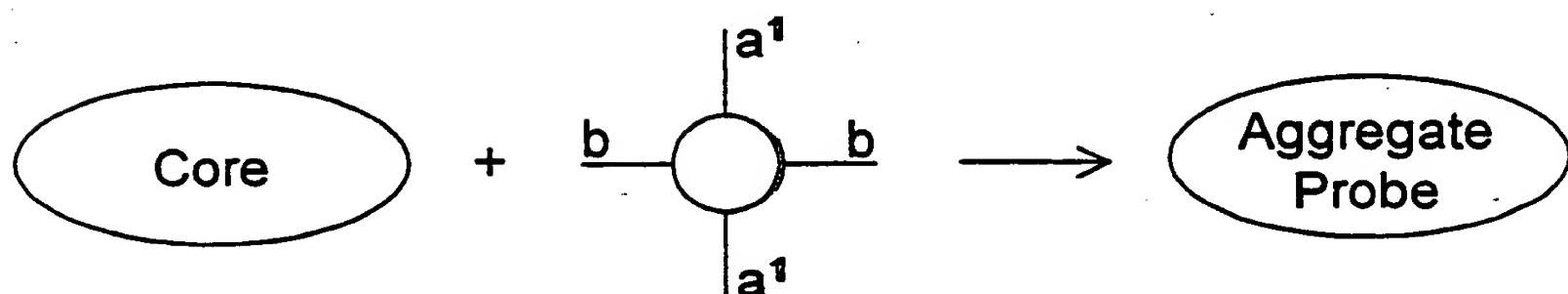
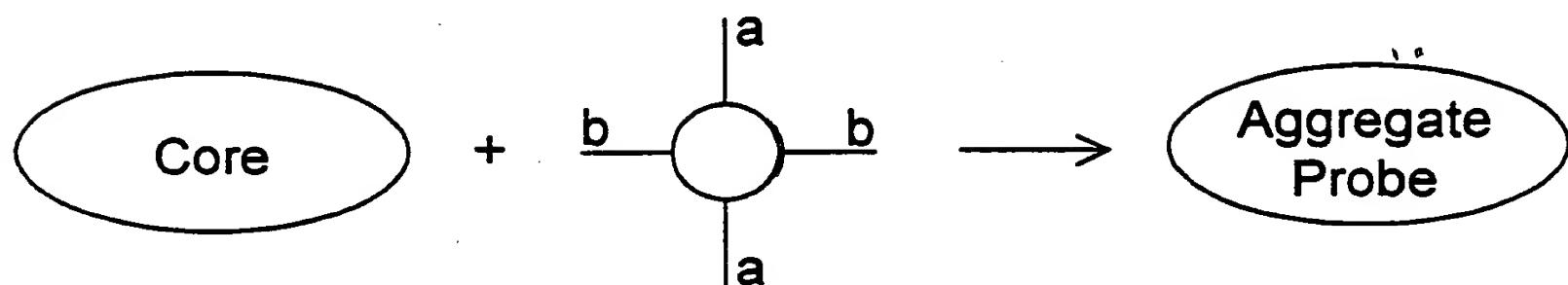
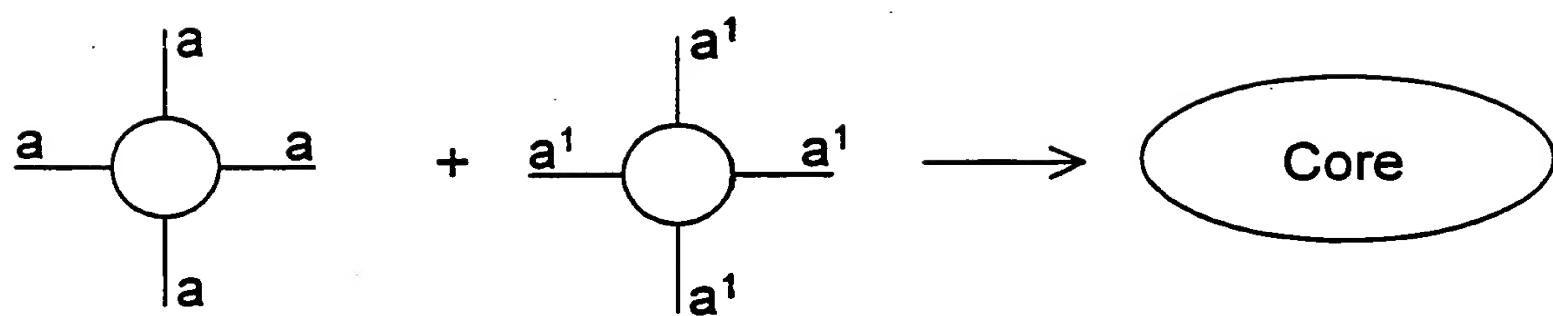


FIG. 28B

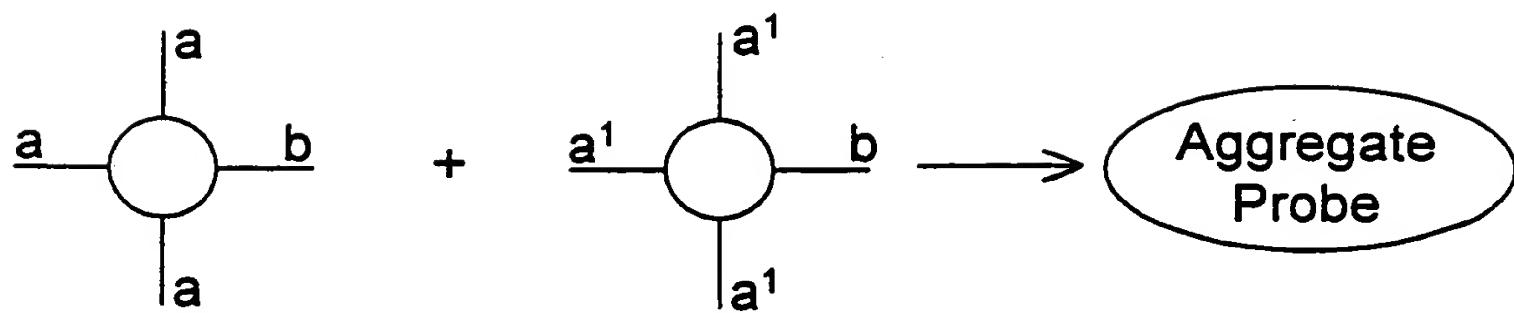


FIG. 28C

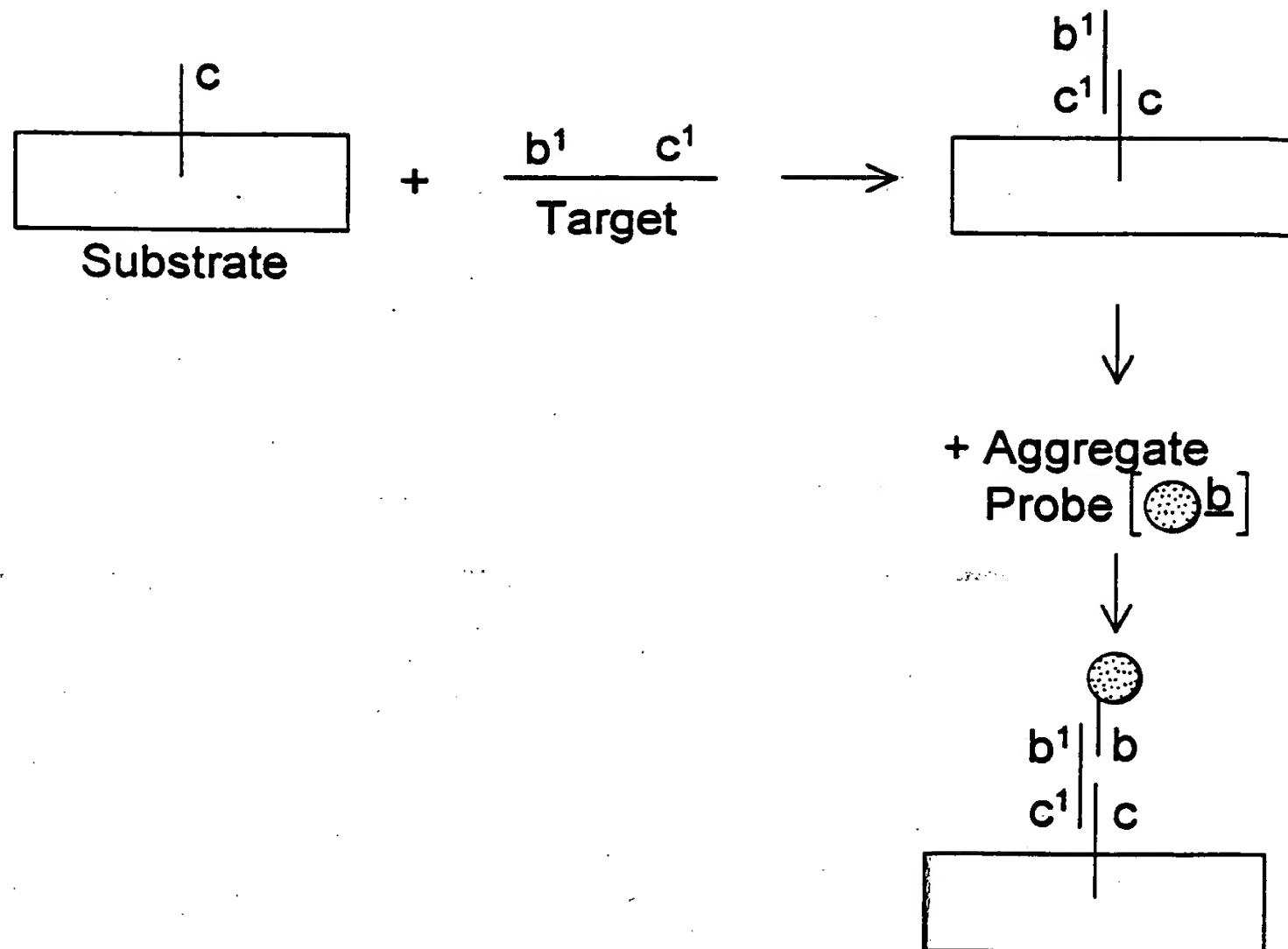


FIG. 28D

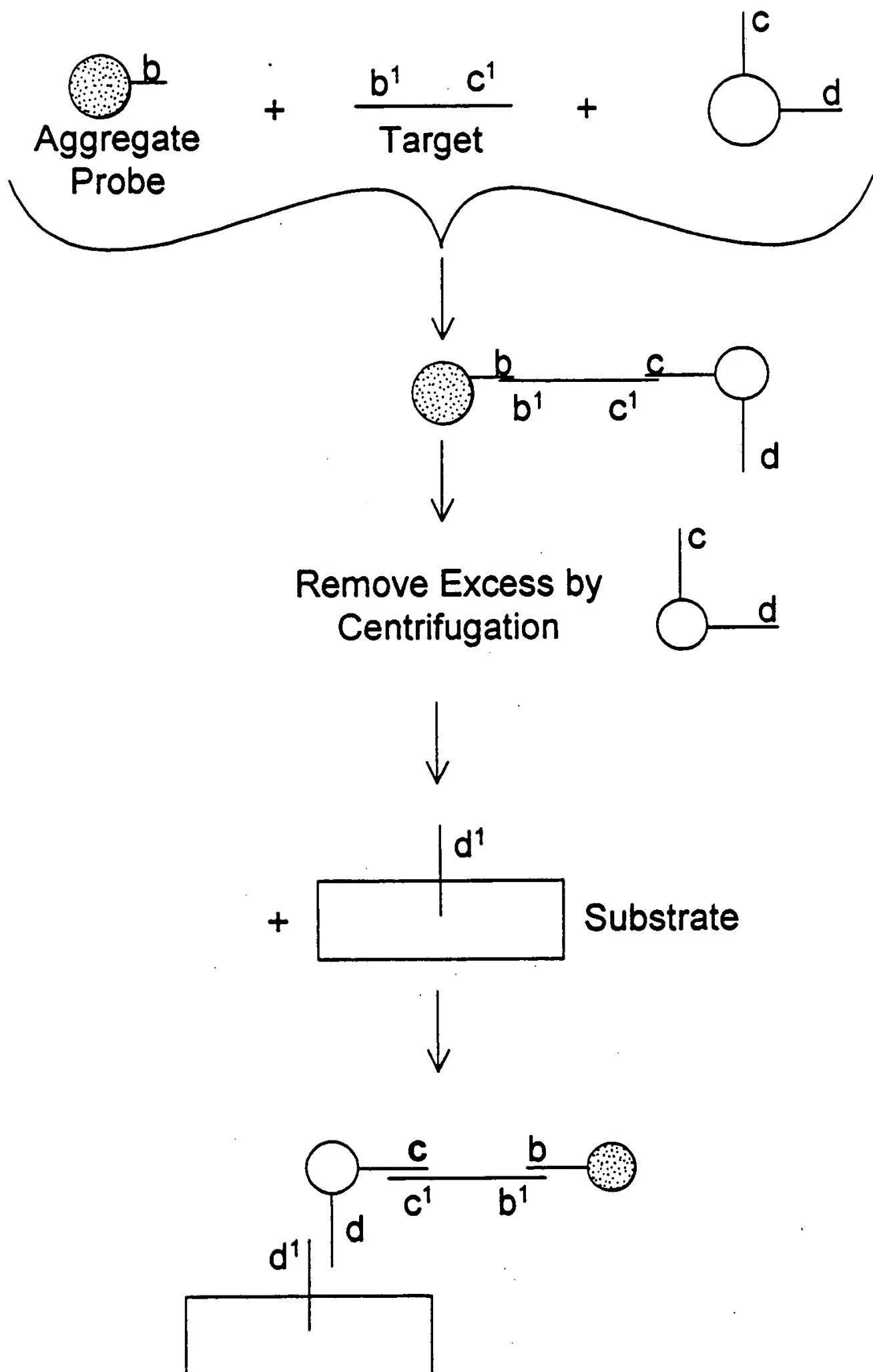
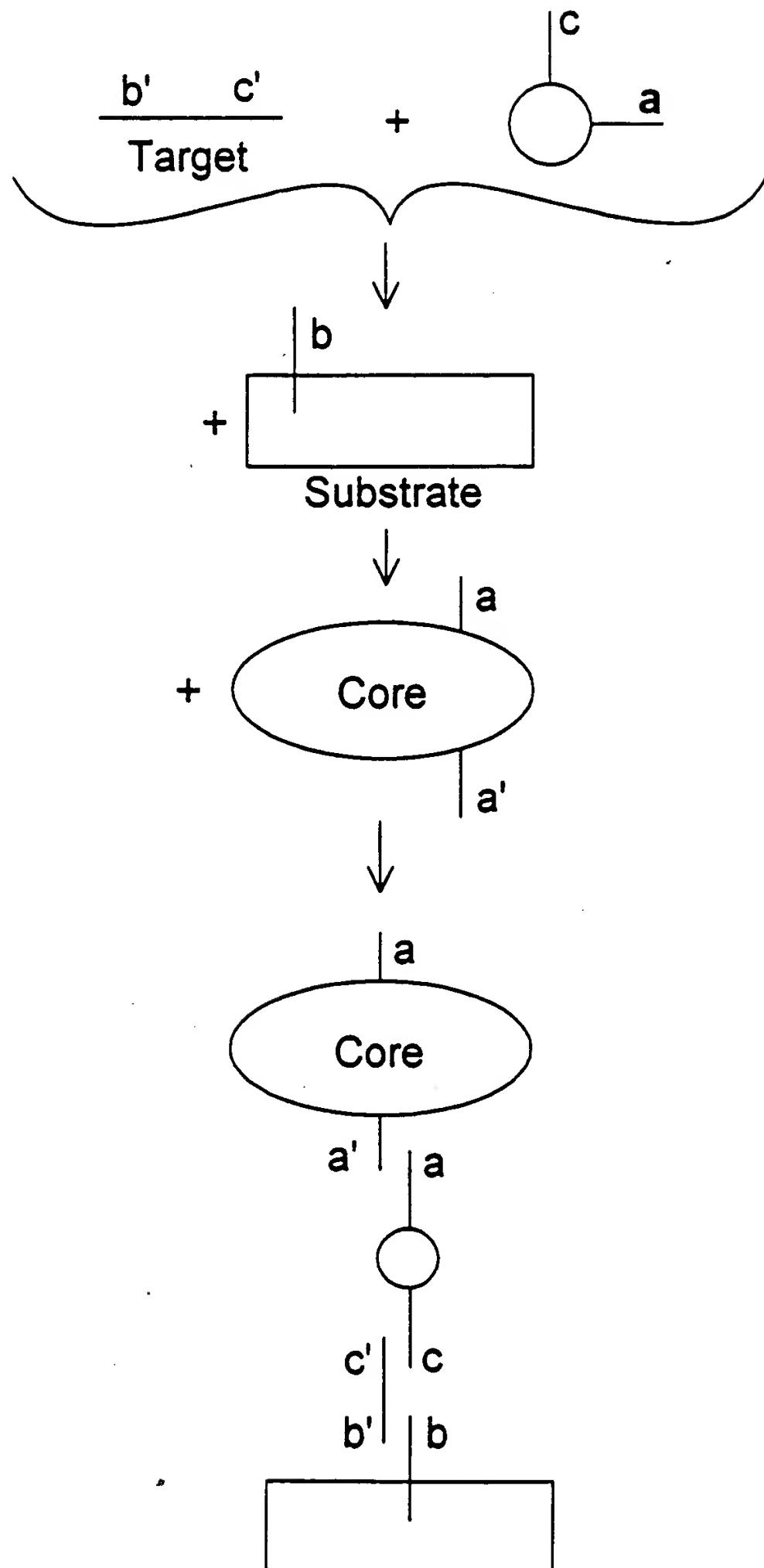


FIG. 28E



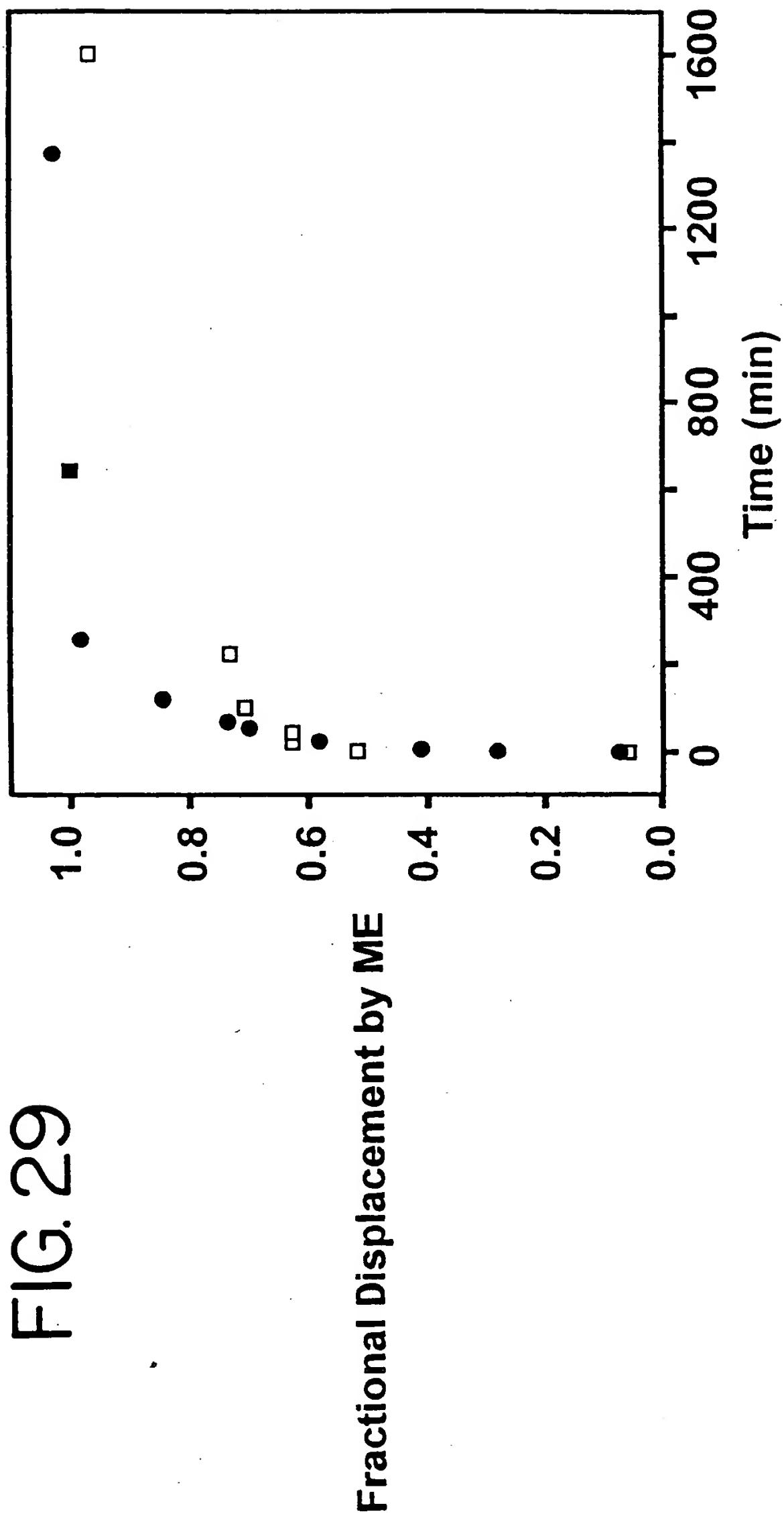


FIG. 30

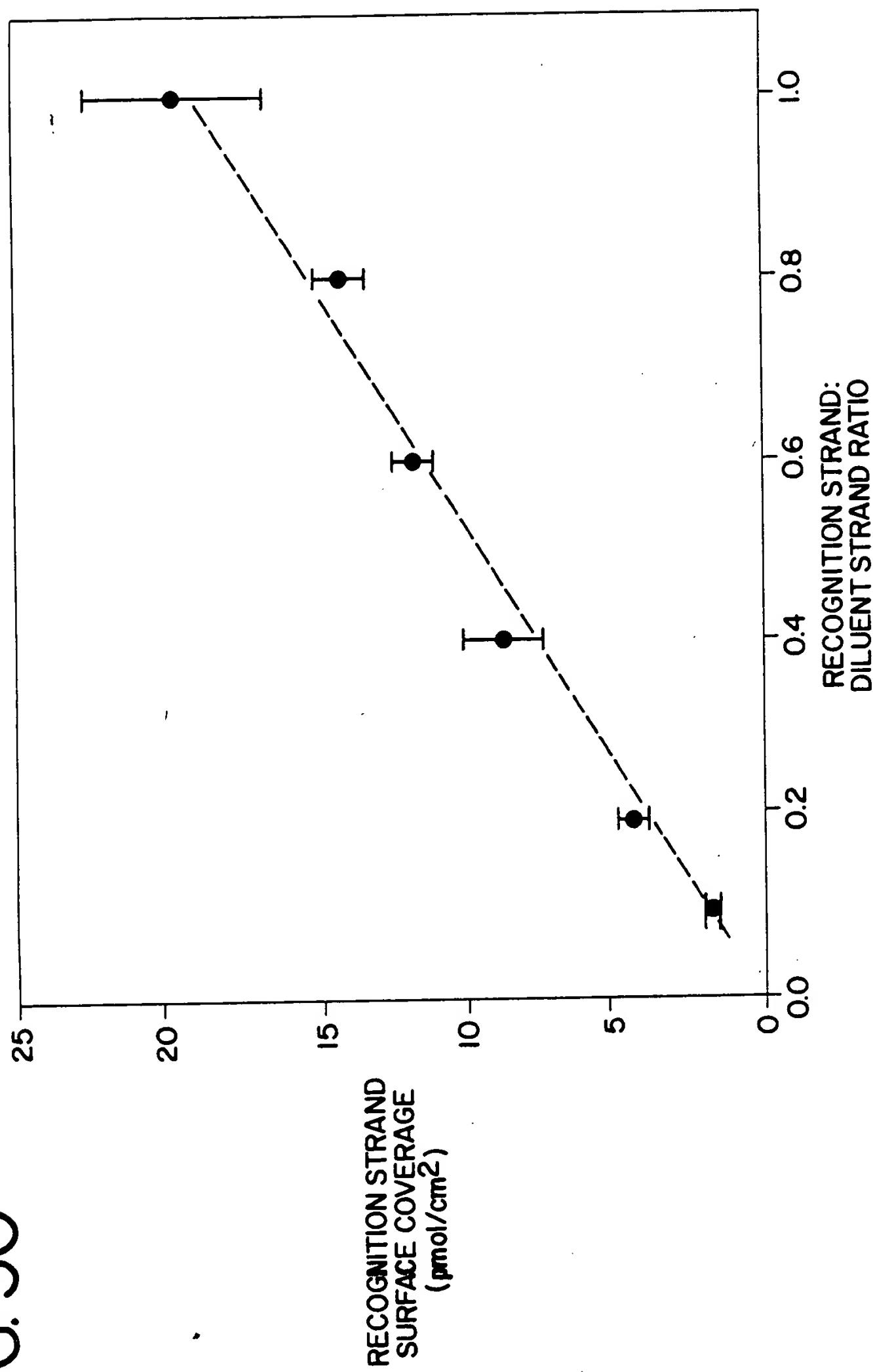
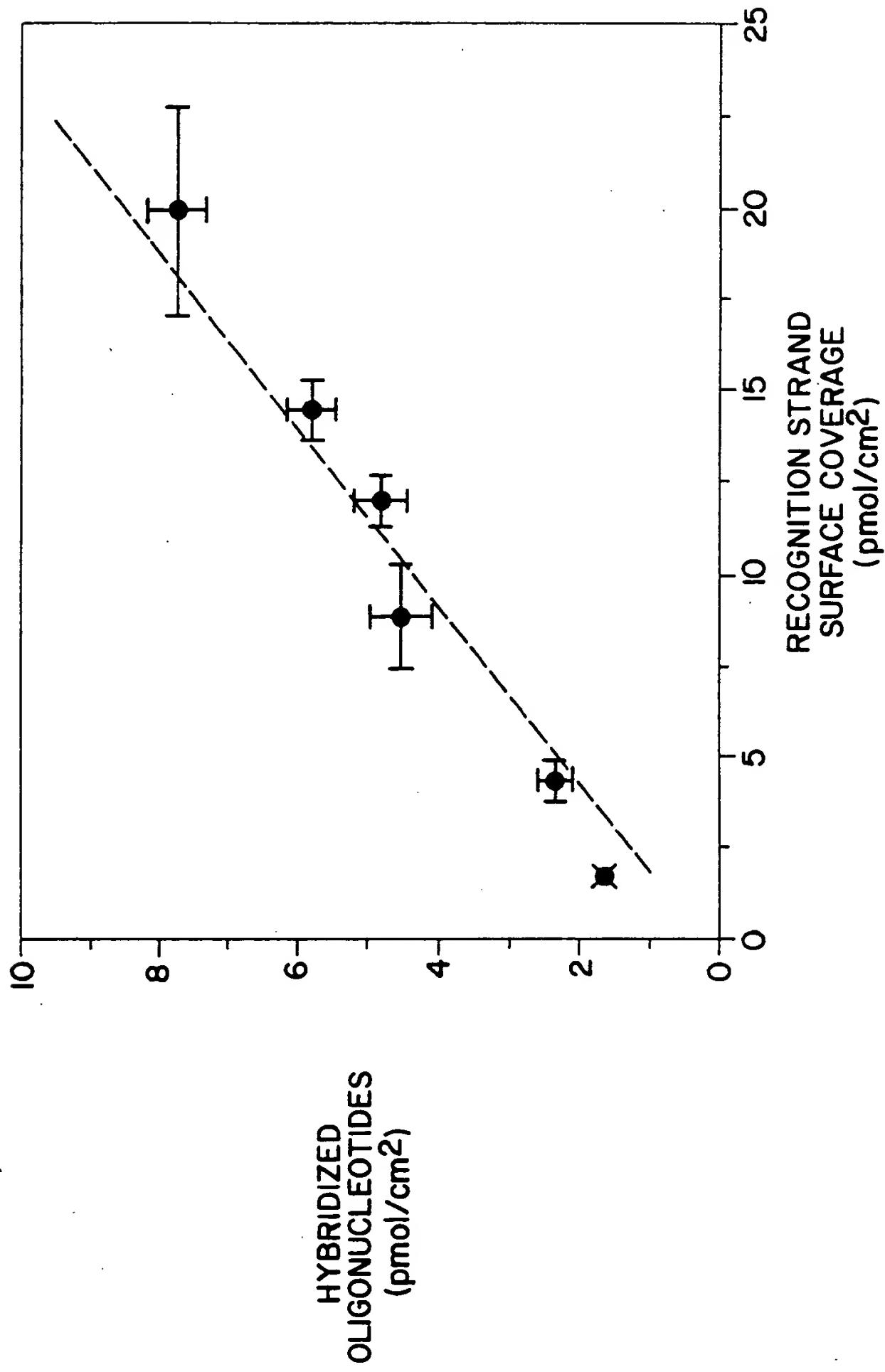
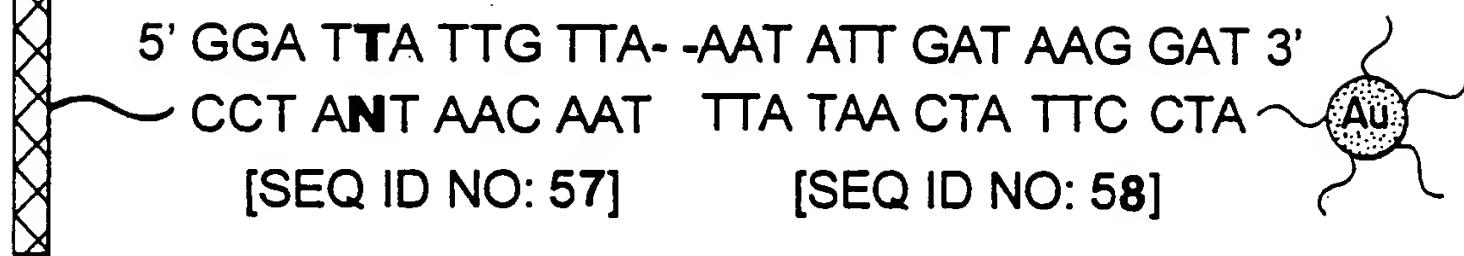


FIG. 3 |



## FIG. 32

[SEQIDNO:56]



**N** = A (complementary),  
 G,C,T (mismatched)

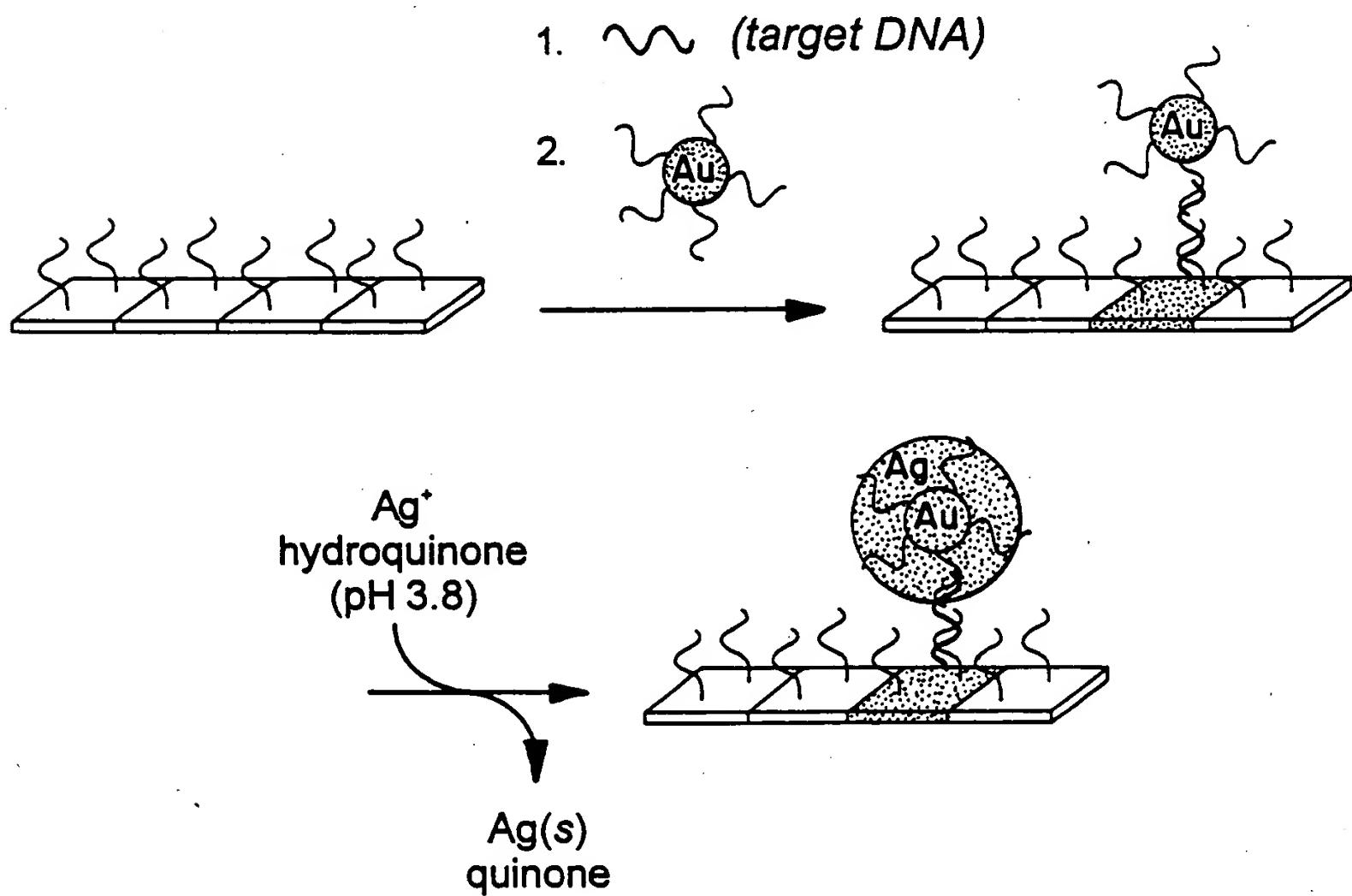


FIG. 33

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A

B

C

D

E

F

G

FIG. 34

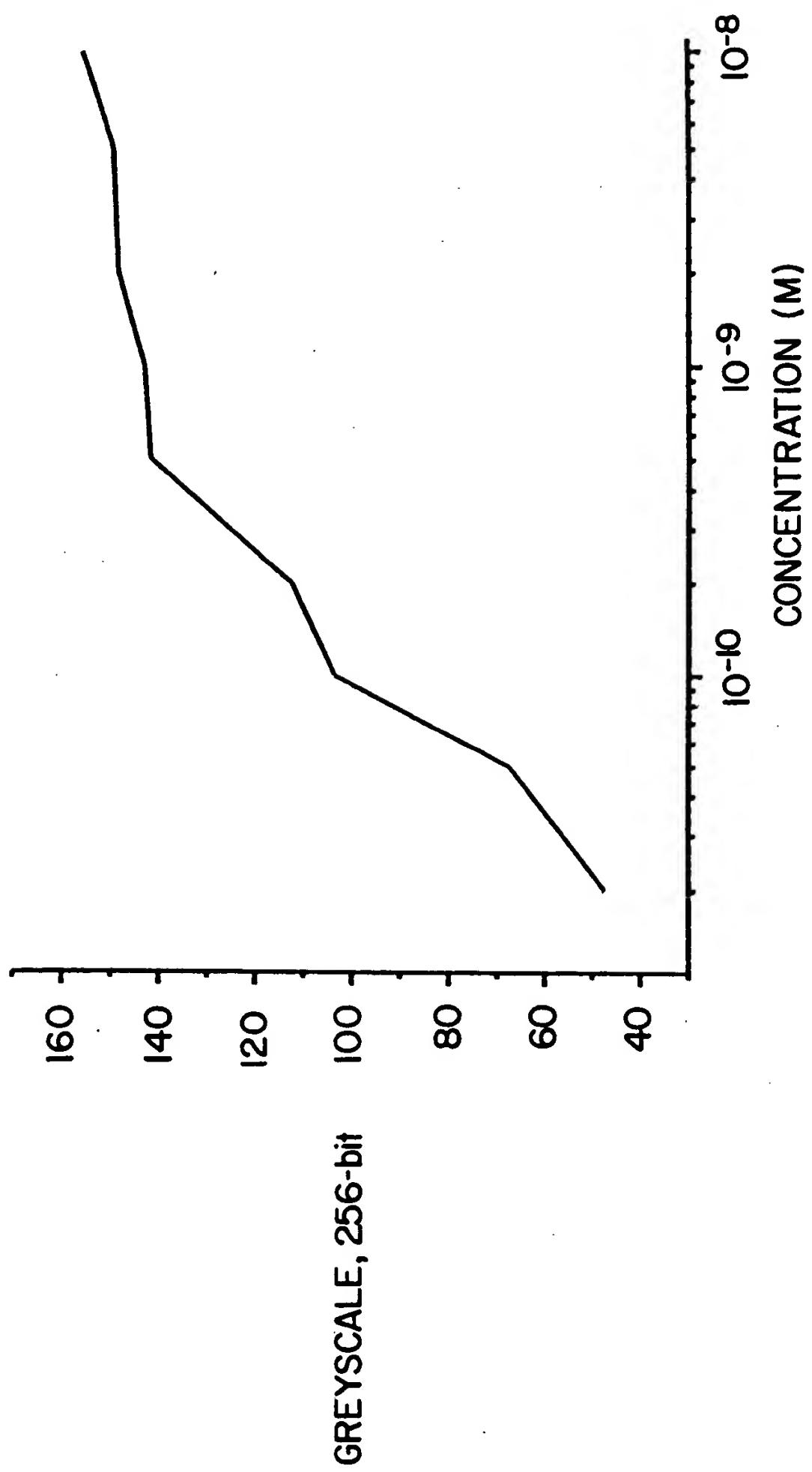


FIG.35A

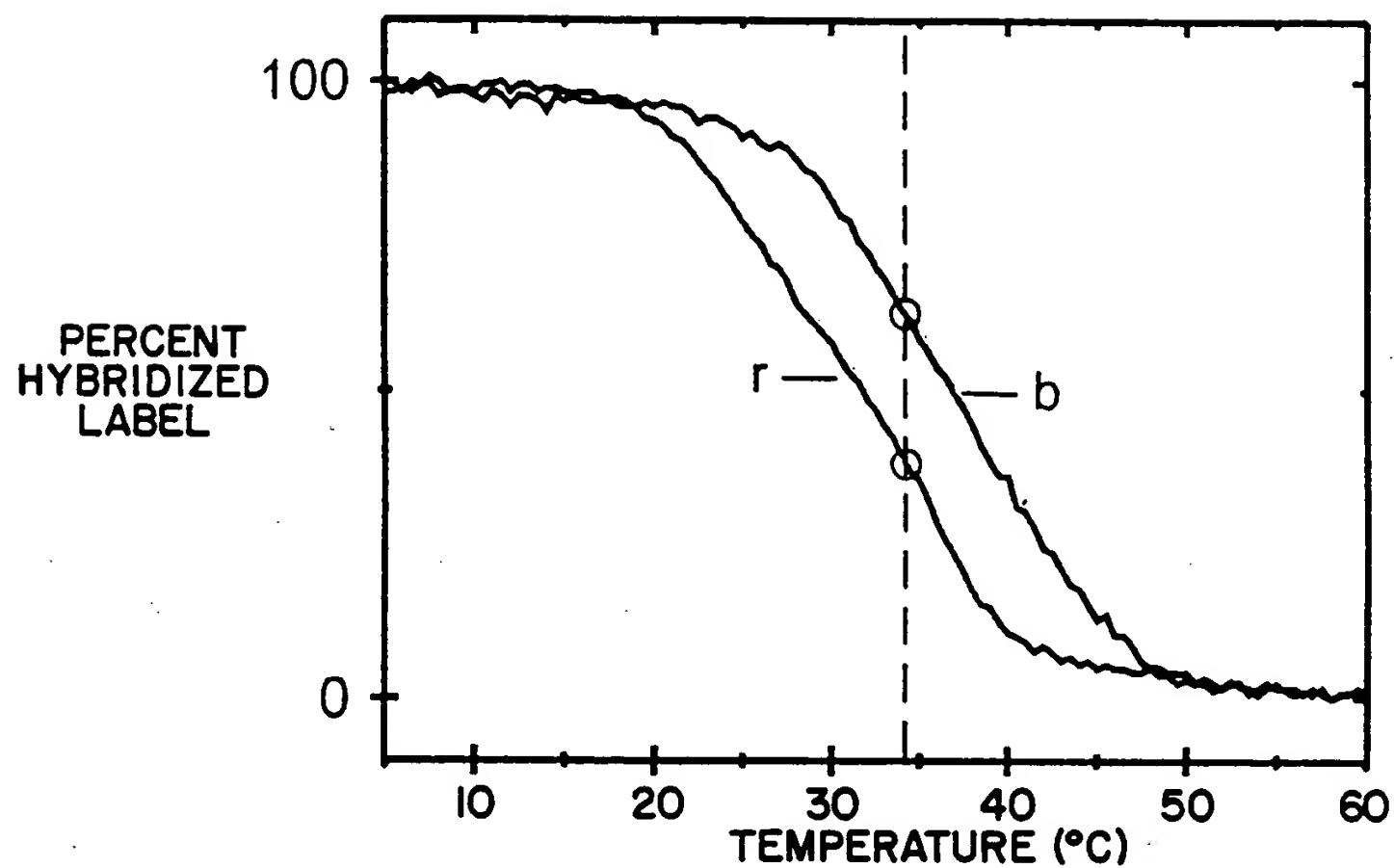
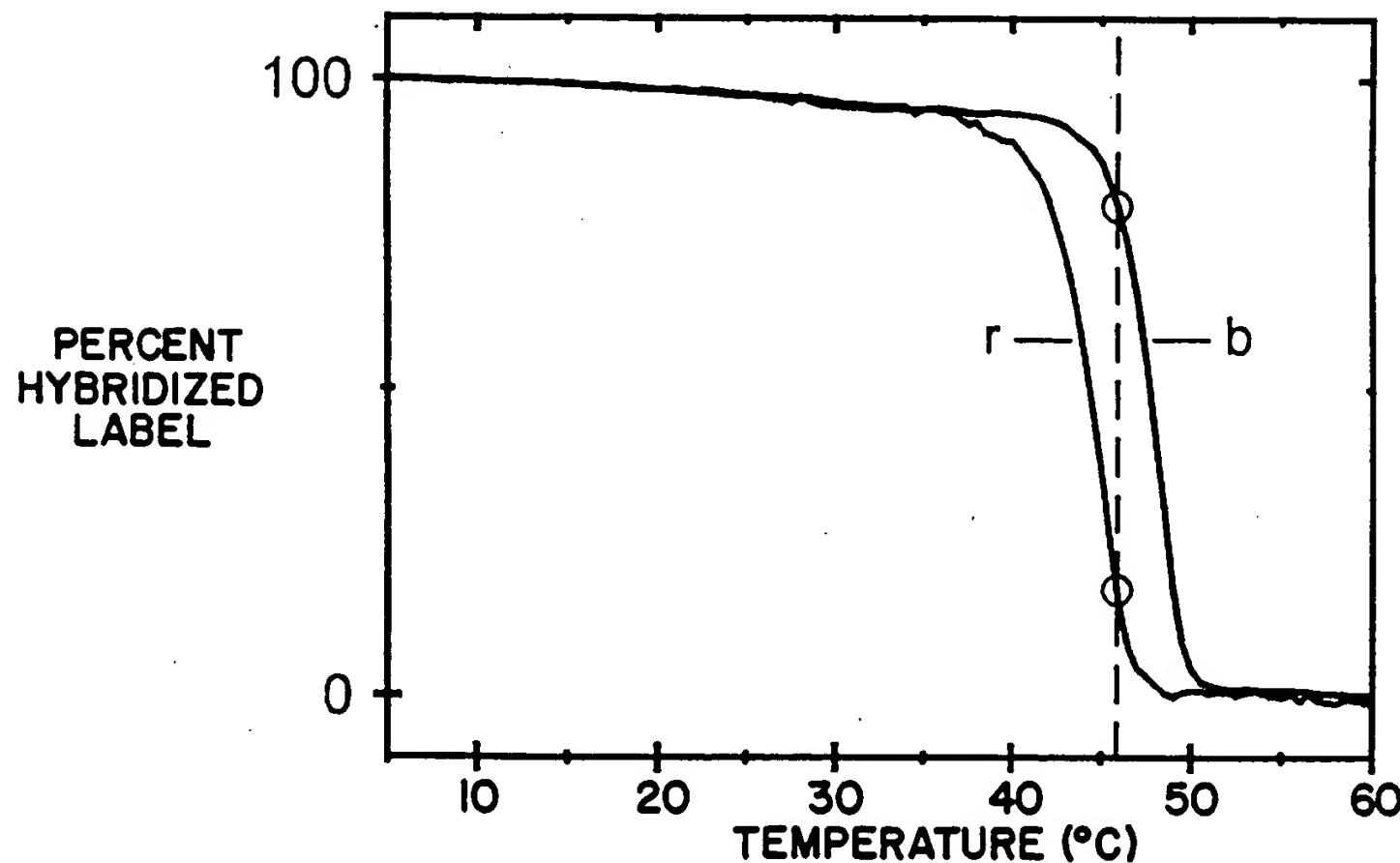
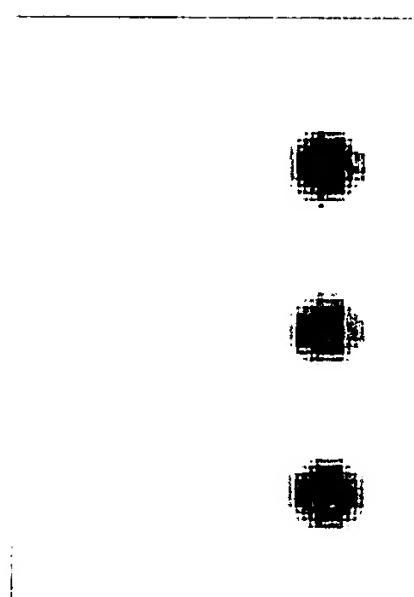


FIG.35B

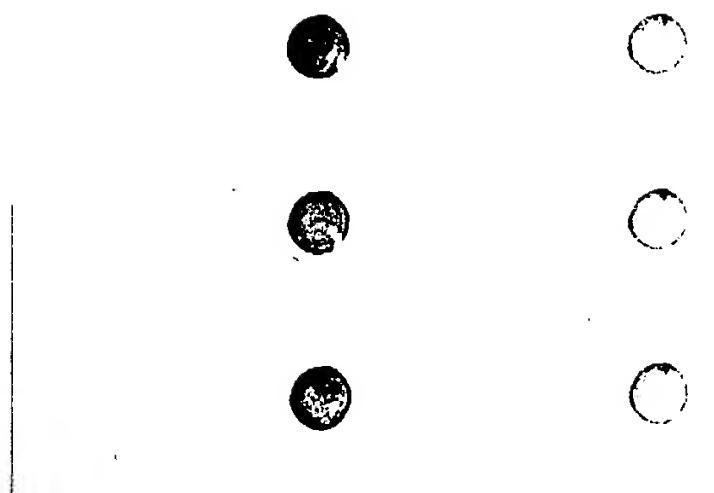


**FIG. 36A**



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**FIG. 36B**



C A T G

FIG.37A

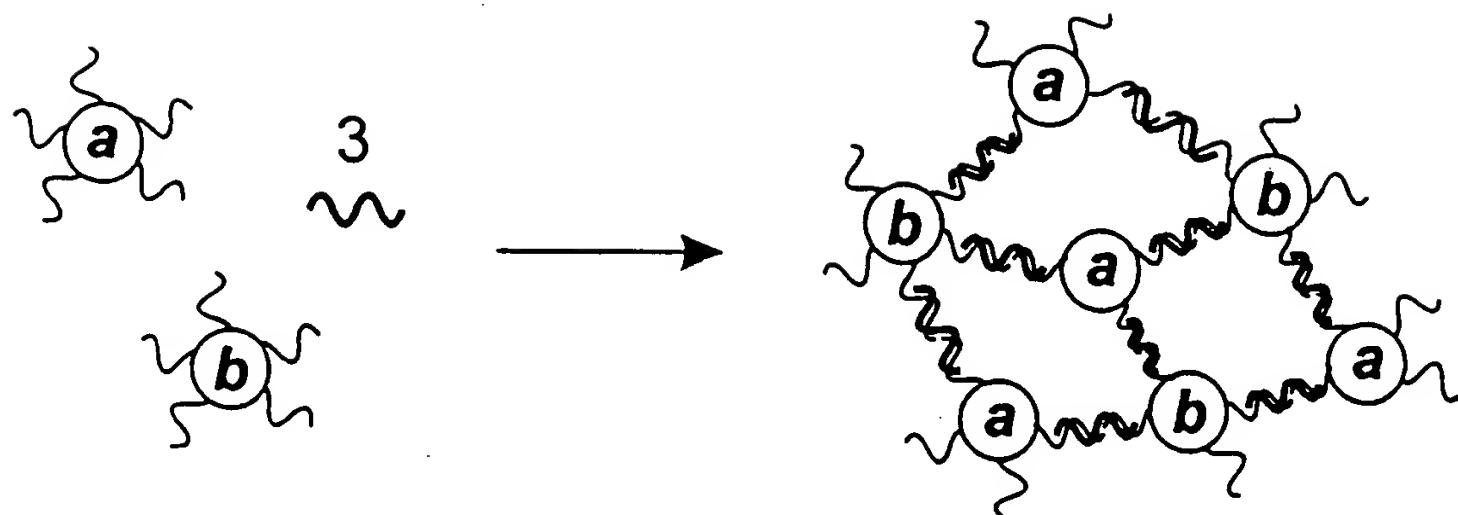


FIG.37B

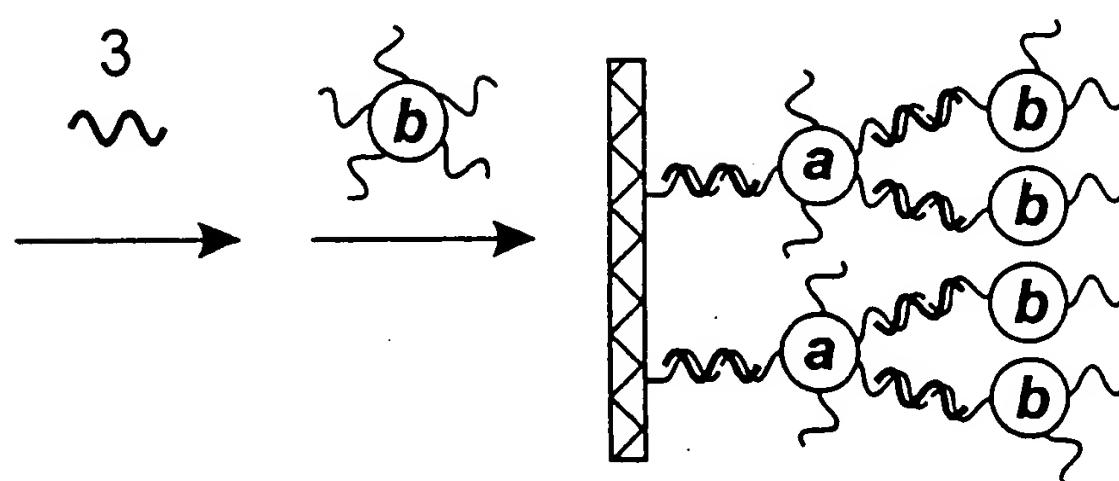
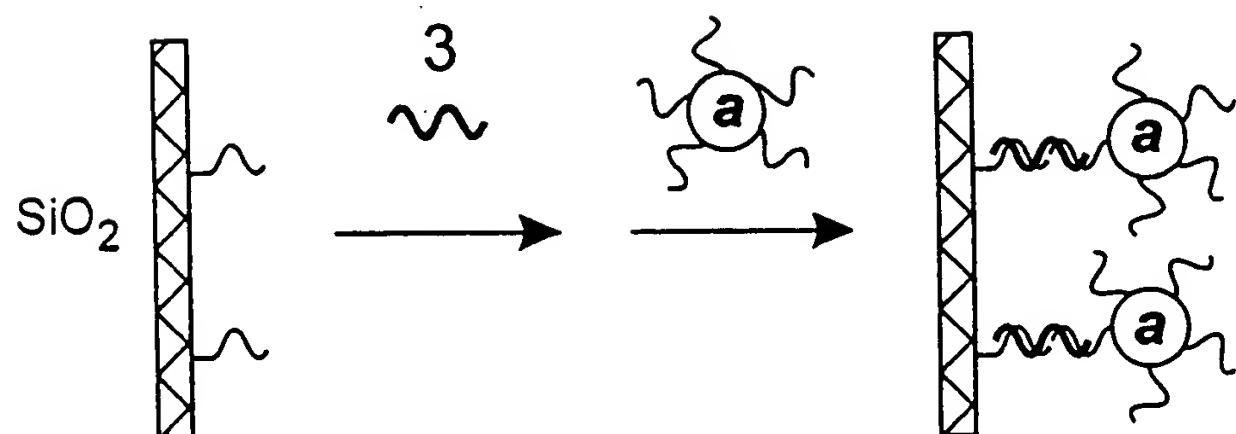


FIG. 38A

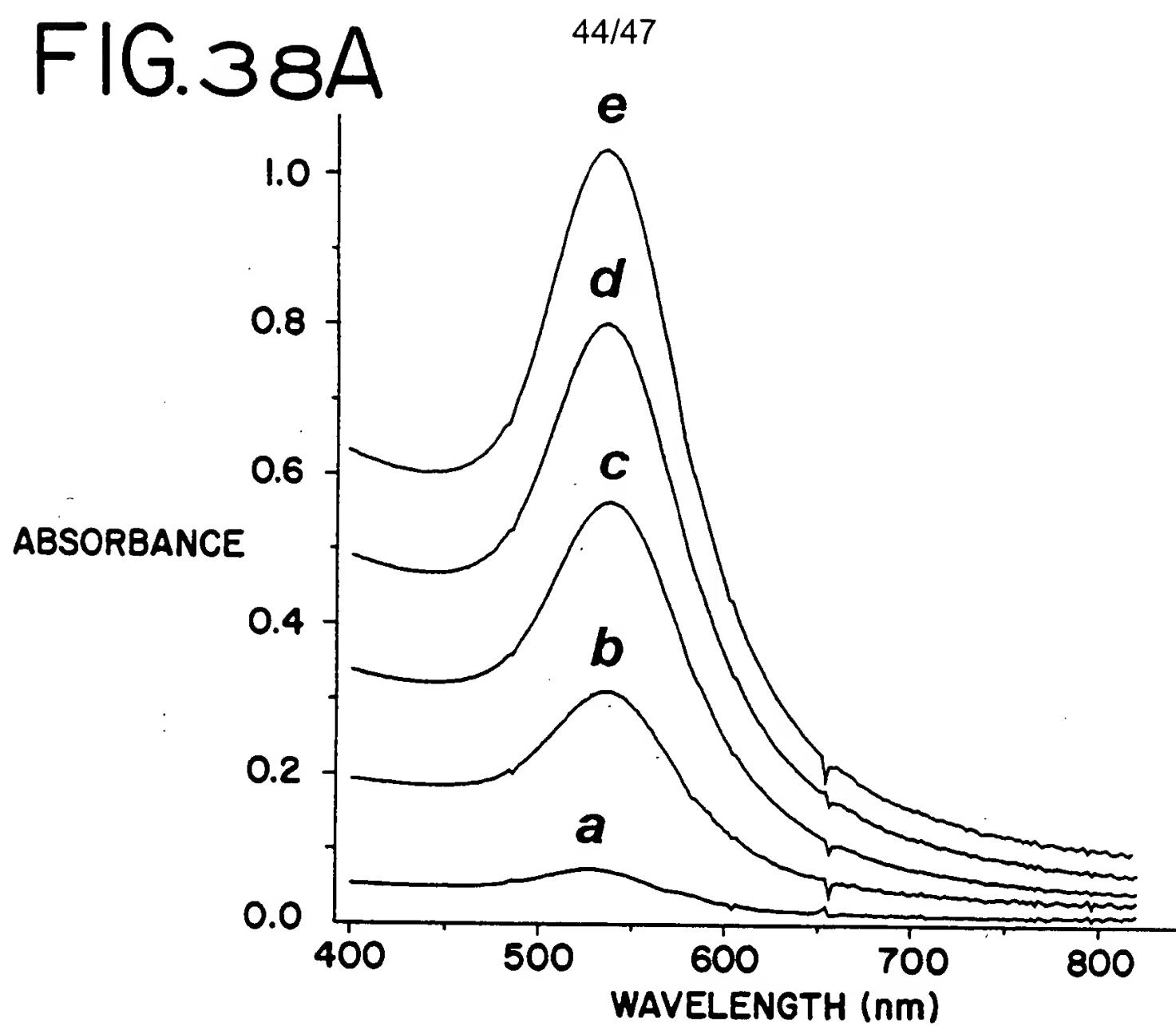
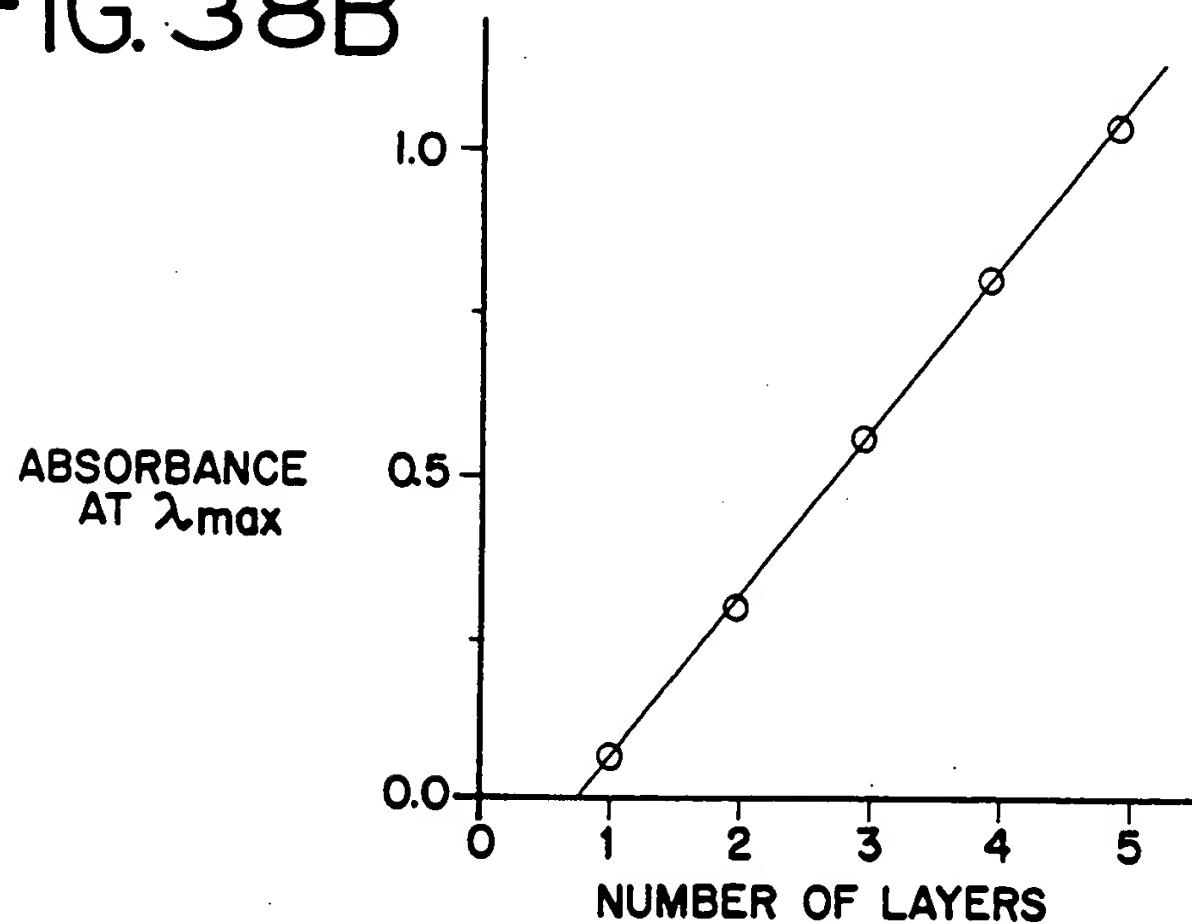
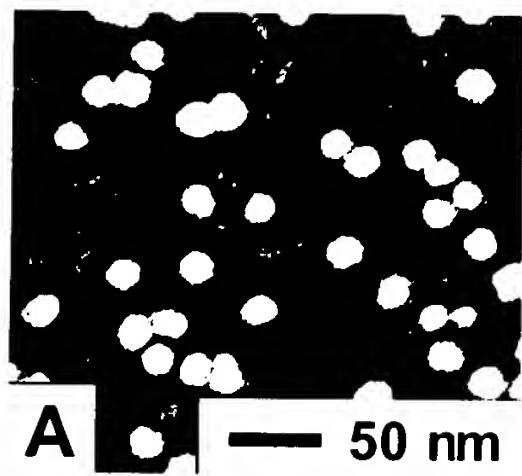


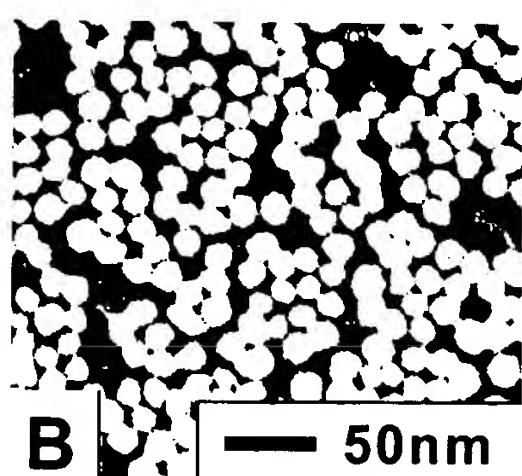
FIG. 38B



**FIG. 39A**



**FIG. 39B**



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FIG.39C

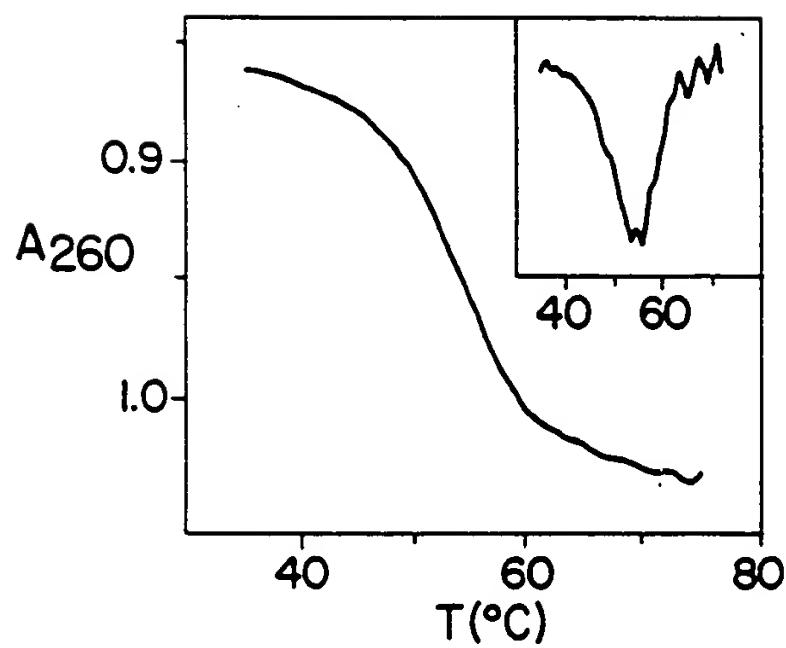


FIG.39D

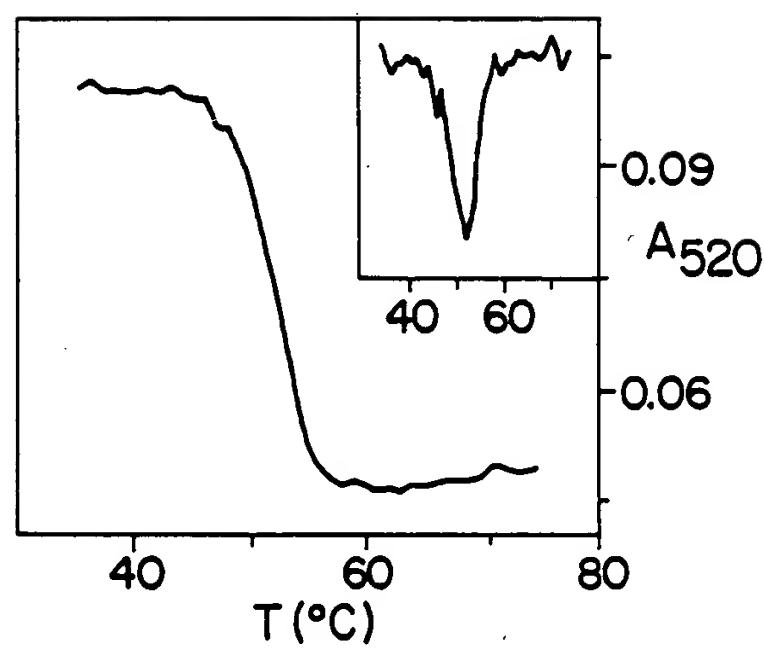


FIG.39E

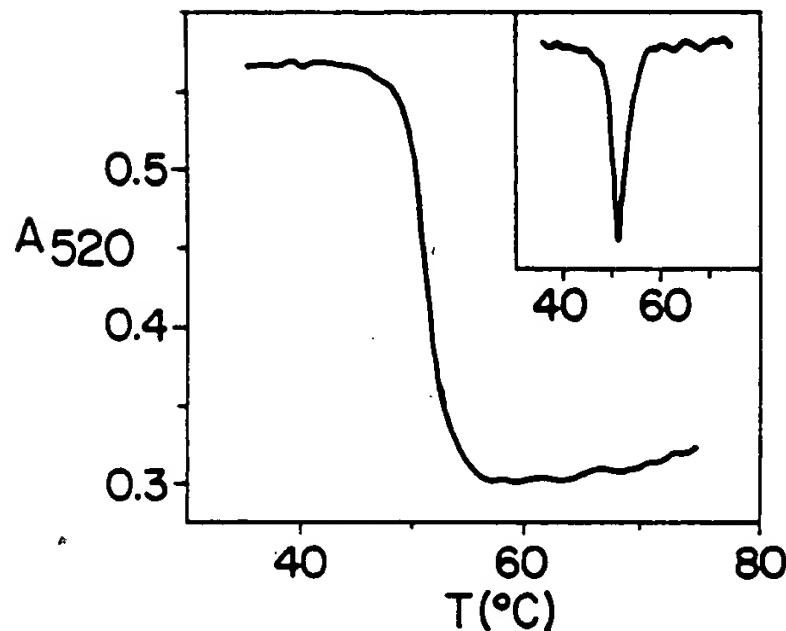


FIG.39F

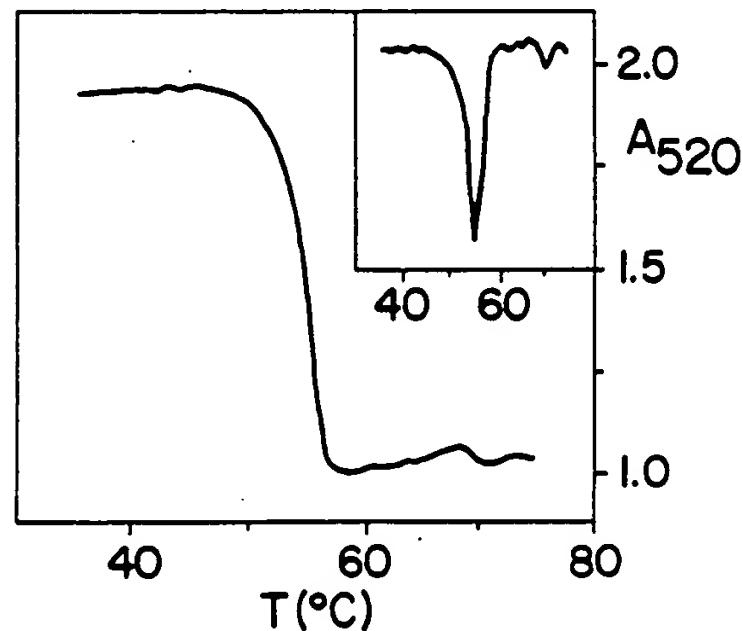


FIG. 40

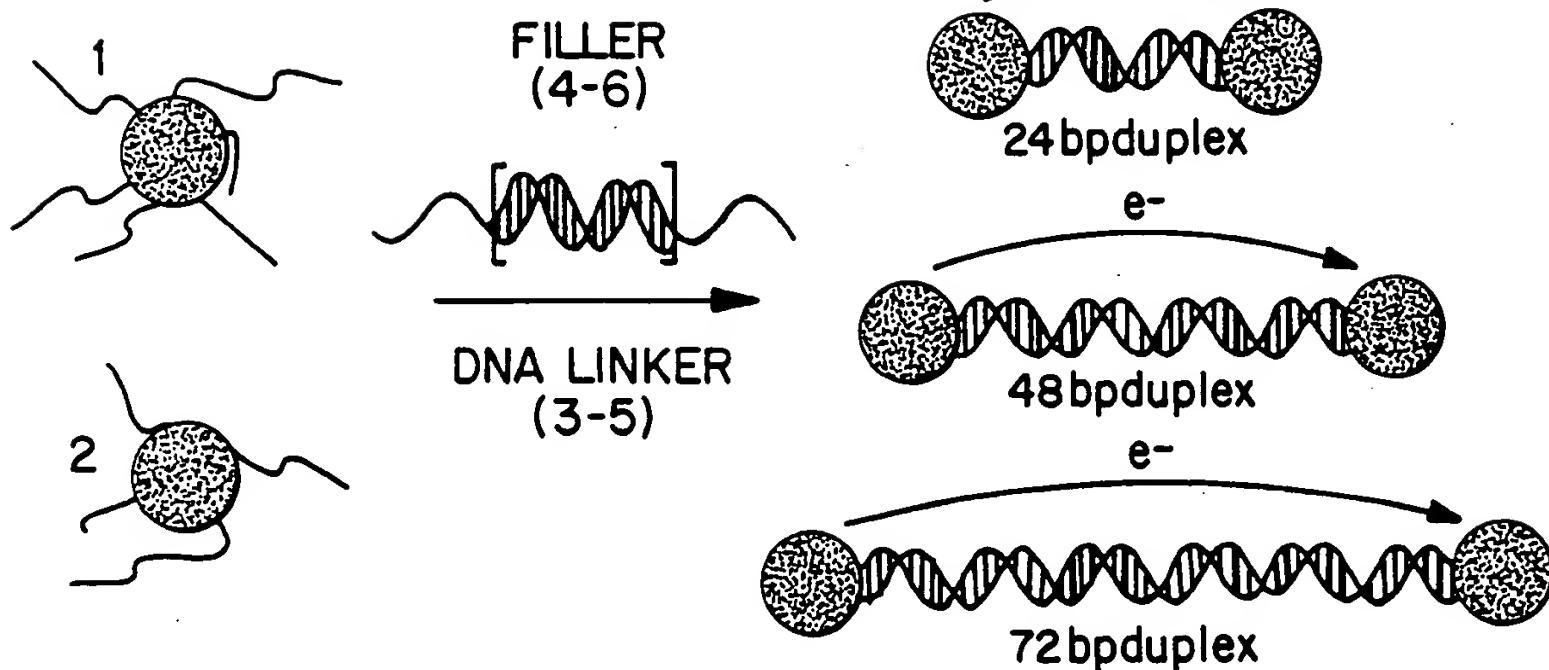


FIG. 41

